TORRANCE TRANSIT REGIONAL PARK & RIDE TERMINAL

DESIGN GUIDELINES & STANDARDS

OCTOBER 10, 2012

RNL

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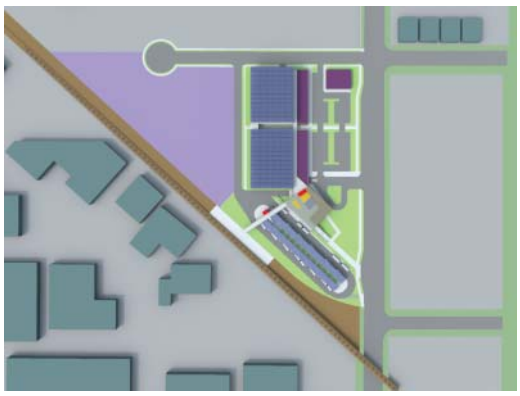
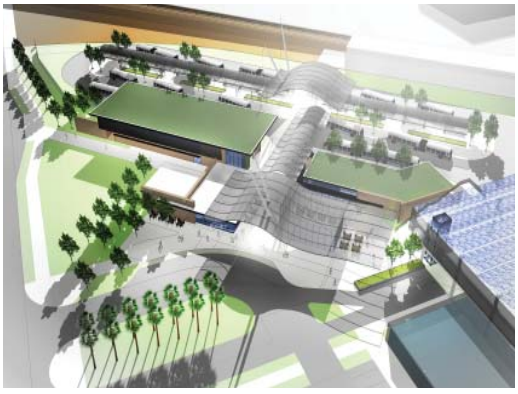
INTRODUCTION & BACKGROUND





Introduction

RNL is pleased to present to the City of Torrance the following Design Guidelines and Standards for the Torrance Transit Park-n-Ride Regional Terminal. This report supplements the 30% design submittal as prepared by RNL, and delivered to the City of Torrance in October 2012.

0.1 Background and History

RNL was selected to design the Torrance Transit Park and Ride Regional Terminal in Fall of 2011. Work commenced early in 2012, beginning with programming and master planning. After two workshops in Torrance, and numerous staff and City Council reviews, a final master plan was approved by Council in April of 2012. In late April, after approval of the master plan, the RNL design team commenced design of the transit center project, including a regional transit center, bus terminal facilities, a parking structure, and future transit-oriented development retail, to be finished out by a private sector developer at a later date. (Figures 0.01 - 0.04).

Through a number of iterations, the initial approach of a two story transit facility, with a bridge connecting future METRO Green Line extension, was rejected for a more cost effective and simpler one story transit center. (Figures 0.5 - 0.7). A desired conceptual diagram was presented to City Council in May of 2012, and this was approved as the basis for architectural design. (Figure 0.8). This plan consisted of a two story operations building, a one story transit retail facility, and a one story free standing retail building, all

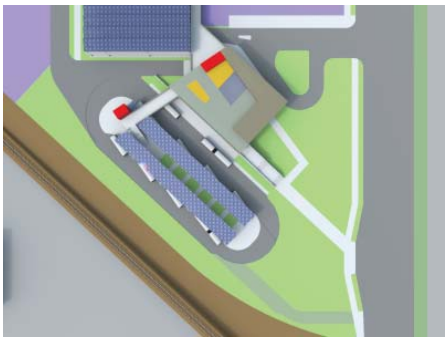


Figure 0.1 *Master Plan close-up of Transit Center*

Figure 0.5 *Early 2-story concept*

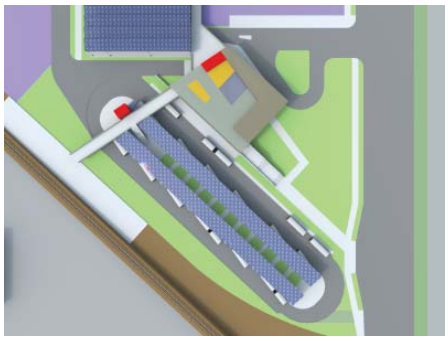


Figure 0.2 *Master Plan close-up of Transit Center build-out*

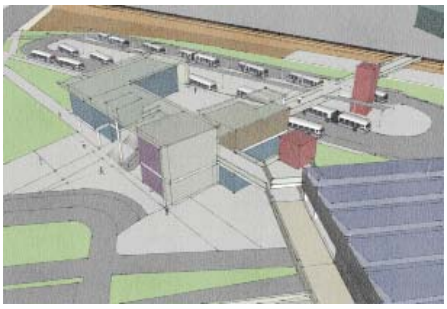


Figure 0.6 *Early 2-story concept*

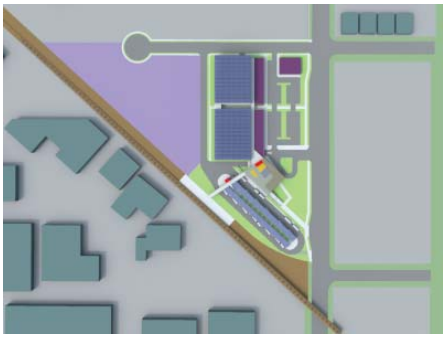


Figure 0.3 *Master Plan overall site build-out*

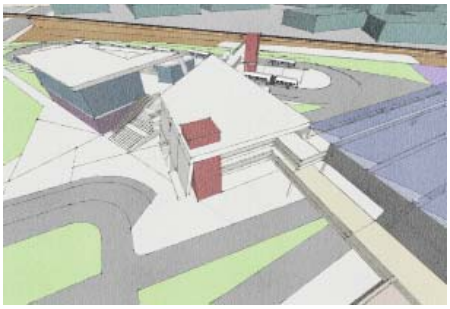


Figure 0.7 *Early 2-story concept*

Figure 0.4 *Master Plan overall site initial phase*

Figure 0.8 *Accepted single story concept*

surrounding a public plaza that would connect to the bus bays at the eastern edge of the site.

The development of the architecture of the project began in June of 2012. The initial studies created a simple, contemporary building that was intended to be more of a background building to the graphics and retail activity of the site. Initial architectural studies included a canopy that would shelter the plaza, and provide way-finding from the parking area and patron drop off, to direct transit patrons to the bus islands. Initial concepts for these canopies were metal roof forms delivered in wavy and angular forms . While RNL had considerable experience in doing fabric canopies, the City expressed reservations in using fabric as a canopy material, and recommended against any kind of fabric canopy use on the site. Therefore, early studies were limited to more solid metal trellises and roof canopies to provide shade and weather protection. (Figures 0.9 - 0.12).

Based upon this direction, RNL developed a concept design which included metal canopies, and architectural form for the three buildings on the site. This was reviewed by staff and by council, but concerns were aired regarding canopy design, and the overall architectural expression of the buildings. (Figures 0.13 - 0.18).

This early concept design also revealed a cost estimate for construction that approached $30M, well over the original $20M used by the design team as the stated design budget of the project. What was not stated at the time was the fact that the budget also needed to include the land cost, taking the actual available construction budget down to approximately $13M.

Figure 0.09 *Early canopy study - Fluid Form*

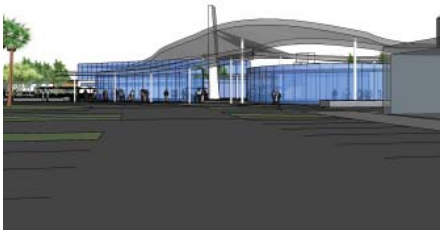


Figure 0.10 *Early canopy study - Fluid Form*

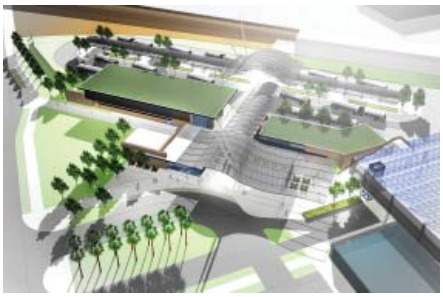


Figure 0.11 *Early canopy study - Fluid Metal*

Figure 0.12 *Early canopy study - Fluid Metal*

Figure 0.13 *Early metal canopy concept*

Figure 0.14 *Early metal canopy concept*

Figure 0.15 *Early metal canopy concept*

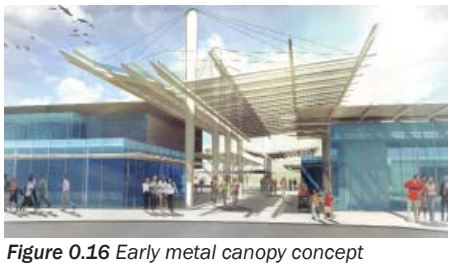


Figure 0.16 *Early metal canopy concept*

In order to deal with this significant discrepancy in scope and budget, the RNL team made a series of recommendations to modify the original design in order to accommodate a much tighter construction budget. These modifications included:

- Eliminating the parking structure to be built in a later phase of the project, and replacing with surface parking
- Reducing building areas to be more accurate with actual program, without compromising function and use of the buildings
- Reducing the program by eliminating the front retail building, and replacing this building with an outdoor plaza for performances, cart retailing, and general community use.
- Reducing site costs by deferring some construction and eliminating the underground storage tank for detention
- Reducing the cost through value engineering of materials on the building, opting for simple and cost effective materials that would meet the original intent of the program
- Replace the steel roof canopies with fabric canopies that would be lighter, less costly, and offer unique opportunities for a more iconic form.

Based on review meetings with staff, these recommendations were accepted and RNL embarked on a second iteration of the project design. The initial efforts concentrated in three areas: 1) site development; 2) building design; and 3) canopy design. Over a dozen canopy designs based on fabric cover construction were studied and presented to staff and reviewed with a Mayor-led review team. Building design and site design were developed and reviewed less rigorously, but within the general parameters of cost and budget. (Figures 0.19 - 0.24).

In July and August of 2012 the RNL team finalized the design of the project and developed a consensus within the Mayor-led staff review committee. Based on this direction, the RNL team presented the results to council and received approval for this overall project direction.

Figure 0.17 *Early metal canopy concept*

Figure 0.18 *Early metal canopy concept*

Figure 0.19 *Early fabric canopy concept*

Figure 0.22 *Early fabric canopy concept*

Figure 0.20 *Early fabric canopy concept*

Figure 0.23 *Early fabric canopy concept*

Figure 0.21 *Early fabric canopy concept*

Figure 0.24 *Early fabric canopy concept*

Based on this approval, RNL embarked on the documentation of 30% design which consisted of site development, site landscape, building architecture, canopy design (Figures 0.25 & 0.26), and building systems including structural, mechanical, electrical, and civil design. A cost estimate update defined that this design was now in the $19M range, which still exceeded the stated $13M target the team was seeking to reach. Since the City felt that they needed the scope included in the project, staff agreed to go back to the Regional COG authorities to request an additional $4M to $5M in funding in order to meet the current design estimate. At the same time, the RNL team agreed to continue to value engineer the design in order to come closer to a new target of $17M to $18M total budget for the project.

In August of 2012, with approximately 75% of the 30% design complete, the City decided that the project needed further development in order to assuage concerns regarding the design that still existed amongst staff members, and that a detailed review of the existing project would be required. At the same time, the City agreed to clarify the lines of authority and to appoint a design review process that would appoint one person as advisor--Kim Turner, Director of Torrance Transit--that would direct the team regarding project design and aesthetics. In order to facilitate this change without requiring a change order, and also to keep the project moving on schedule, RNL agreed to undertake a rigorous design review process, consisting of three workshops, in three weeks duration, to look at the project in totality, and to make recommendations to the existing design that would better meet the City of Torrance objectives.

The meetings began in early September 2012, and were completed in three weeks at the end of the month. In the meantime, in order to keep the project on schedule and to meet an early October completion date for 30% design, the RNL team continued to complete the 30% design documentation, using the original design as a baseline case for cost estimation and project review.

Figure 0.25 *The basis for 30% design canopies.*

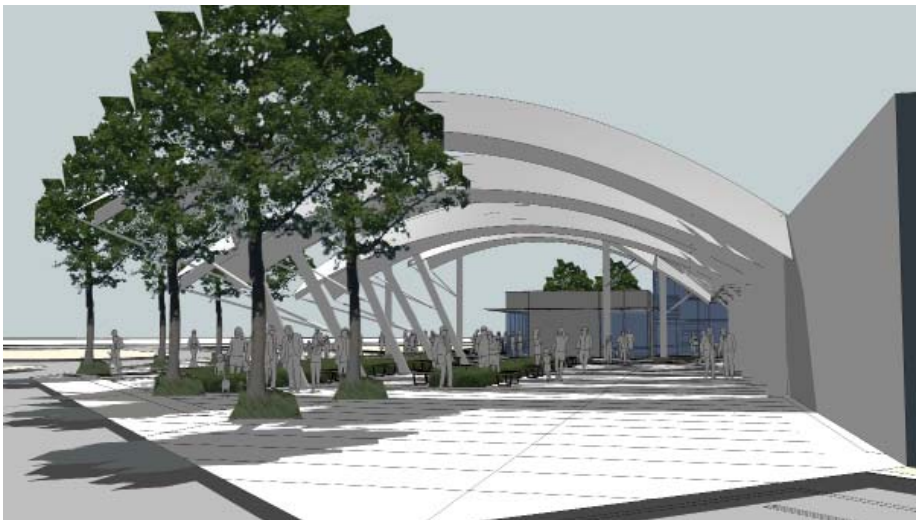


Figure 0.26 *The basis for 30% design canopies.*

0.2 Defining 30% Design Documentation

In a meeting to explain project process, the RNL team explained to the city that many of the existing design concerns and issues, including project detailed landscape design, building color and texture, canopy form and shape, and building final form, involve a level of detailed design that would extend well past the 30% phase and into the final design of the project, culminating at 60% design.

Since the City originally intended to have RNL only contract for 30% bridging documents, the work in altering the project would have to be given to the final design build team selected in a subsequent procurement process. Based on this approach, the City would issue the existing 30% design, as well as recommendations for the development of that design, to the design build architect, who would implement the detailed design of the project, develop the final design, prepare the construction documents, and issue the final design package for final pricing.

RNL is also aware that an alternative approach to moving ahead, being considered by the City of Torrance, is to have RNL complete the final design, and a contractor then selected through a competitive process through the preparation of a firm fixed price, delivered near the completion of contract documents.

0.3 Documenting 30% Design

Since RNL agreed to undertake the rigorous design review process, it now becomes important to document the results of that effort in such a manner that either RNL or another architect, depending on the City's desired procurement approach, to move ahead with the design, incorporate the comments and directions, and to modify the existing design according to the new design input and direction. While this new information cannot be included within the scope of the 30% submittal, it has been determined that the proper manner to document the findings of the 3 week rigorous workshops would be to prepare a set of Design Guidelines and Standards that will direct the future design efforts going forward from 30% design to 60% design. From this design development effort, the existing 30% design would be later modified and developed to include color, materiality, changes in design details and forms, and modifications to the canopy design, site design and site landscape.

Because there has been broadly based consensus on the overall floor plans, building elevations, building massing and form, and overall site layout and operational flow, the 30% design as completed accurately portrays the project to be built on the site, and can be the basis for final approvals by City Council and acceptance of the general directions going forward. At the same time, because of the rigorous design evaluation undertaken in September, the Design Guidelines and Standards will provide the direction and intent for the design development effort that will follow.

The Torrance Transit Park & Ride Regional Terminal Guidelines and Standards report documents the results of the 3 week design review process involving City staff and the RNL team. This report is organized by topic, beginning with building architecture, then canopy, and finally site development. During this process, the project design was developed considerably further than the existing 30% design, which will necessarily require modification to the existing 30% package. However, to reiterate,

Figure 0.27 *The 30% design Project* ***concept aerial***

the level of detail of these discussions go considerably further than 30% design, moving more into final design which has yet to commence. So while these discussions often got into more detail than the design reflected, the guidance and input will be invaluable to the architects who will carry the design forward into the next phase of development. Should that work be done by RNL, the design team will simply incorporate these ideas and directions into the next iteration of design at the same time the building structural, mechanical, and electrical systems are refined. Likewise, these discussions will also inform the detailed LEED sustainability process, leading to a final design that will meet LEED Gold or better objectives of the project. Should RNL not provide the final design, once a design build team is selected, the new architect will take the existing 30% design package, plus the Design Guidelines and Standards, and proceed to advance the design to a 60% level.

In both cases, the City will have continued input into how these ideas are reflected in the final design, and how the project will eventually look when complete.

Based upon the four week review process, the following changes from the existing 30% design will be reflected as recommendations for future design development work, herein referred to as Design Guidelines and Standards.

Figure 0.28 *The 30% design Project* ***concept at the Driveway Entry***

Figure 0.29 *The 30% design Project* ***concept at the Entry***

Figure 0.30 *The 30% design Project* ***concept at the Plaza.***

0.4 Design Guidelines and Standards Overview

Building floor plans:

- Building floor plans were generally accepted as presented in the 30% documents.
- It was agreed that additional access to the conference room, and room interior organization and furniture layout would be studied further as the design advances.
- It was agreed that future design budget must include FFE for complete furniture, fixture and equipment for the transit portions of the building (not including vendor areas).

Building Architecture:

- Introduction of color into the building palette as described in this report.
- Introduction of texture into the materiality as illustrated through precedent examples in this report.
- Introduction of more curvilinear forms to roof parapet, some façade elements, and canopies in order to create more “punch” to the overall design of the buildings.
- Building lighting and graphics will be developed to enhance the overall aesthetic appeal of the buildings, and to enhance the user experience in way finding and also to help define an iconic image for the City of Torrance.
- Material preferences will include contemporary, colorful, and low maintenance materials such as high quality cement fiber and metal panels as primarily building elements, reflecting a contemporary feel consistent with the 30% design direction for the project.
- Concrete blocks, where appropriate, will be acceptable as a background material for the project. When used, they should maintain a consistent contemporary palette of design.
- The location of windows is based on natural day lighting requirements for LEED points and aesthetics. While window locations were generally approved, the detailed design will develop window concepts further, with enhanced window treatment for sun and glare control, and to undertake day lighting studies and modeling to refine window location and aperture size.

Canopy Design:

- The detailed review process revealed that the 30% design solution had too much canopy area over the entire site. While the original intent had been constant rain protection, this requirement was relaxed. Subsequent canopy studies directed the development of a single iconic entry canopy coupled with a less significant, but of the same family, canopy at the edge of the park plaza.
- Canopy design over the central plaza would be eliminated, providing instead an open passage from the entrance plaza to the bus bays.
- The bus bays would include a continuous canopy that would provide rain and sun shelter for those patrons waiting for the bus. This canopy would reflect the two front canopies, but would be more linear in form, with more cover, and a less iconic shape.
- A recommended canopy direction was derived from studies of numerous canopy precedent studies. A simple, elegant two bay canopy design, as seen in pictures taken at Bard College, will be used as the standard from which the Torrance canopies will be developed.
- Canopy support structures will be kept to a minimum, and will be placed at the inside folds of the major canopies, to allow for the canopy itself to extend past the structure in a more elegant umbrella extension. Details of this approach are illustrated in diagrams in this report, and will be developed further as the design advances.
- Canopy support structure will be a simple single column structure, with tree branch supports for the canopy.
- All canopies will be lit from above and below to enhance the canopy aesthetic and to form an iconic image for the community. The canopy will be the major “wow” factor for the project, and thus will be the primarily focus for form and lighting for both daytime and nighttime impact.

Site Design:

- The overall site plan as presented in the 30% design submittal has been approved as consistent with the master plan and appropriate for the intended development of the project.
- The initial recommendation for trees in the transit island has been modified to remove the trees, and replace these elements instead with a combination of lower level greenery and vertical light and signage forms to punctuate the design. The canopy will be the primary architectural element within the bus transit bays.
- Any use of porous pavers must be limited to landscape areas that are outside of the primary pedestrian passage ways. The use of these pavers will be limited to the edge of walkways, out of the travel areas, and as borders to planting areas, tree planting areas, and aesthetic treatment outside the walking pathway. All other walkways will be developed as concrete surfaces, using a variety of finish and color to enhance the pedestrian scale and character of the public spaces.
- Paving design shall be simple and elegant, with more natural curvilinear patterns that reflect the softness of the canopies, and the enhanced architecture of the buildings. Seating and planters shall be kept along the perimeter of the plazas, walkways, and major gateway entrances so as not to impede passage by the patrons using the facility.
- Public plazas will be kept open and without clutter to allow for flexible use in both daytime and nighttime transit operations. These spaces will allow for vendors, performances, and other public gathering.
- Street furniture types have been selected through this review process. These will be located on site to enhance the pedestrian experience. All furniture shall be provided to minimize maintenance, reduce vandalism and vagrancy, and to prohibit skate boarding.
- Light fixtures will all be LED for sustainable design. Actual pole design and placement will be accomplished during the detailed design phase of the project. In general, all lighting will be provided for adequate safety and security, and to provide a general lighting scheme that will enhance the architecture, and support the pedestrian walkway environment.
- Site tree placement will be made based upon a native, low water palette. The 30% design palette has now been refined and that refined direction included in this report.
- Parking lot tree placement, and site edge tree placement along Crenshaw shall be according to City standards. In order to provide for better visibility, actual spacing and setback of these street trees will vary from City standards based on City approval of final design. The intent here is to widen the spacing such that the transit center is highly visible from the street.

Sustainability:

- The 30% design package as developed supports a LEED credit point count that will allow the project to achieve a high LEED Gold certification . Every attempt will be made during the final design to maintain this level, and if possible, to reach a higher level that will allow Platinum to be achieved. Exact building materials selection, detailed modeling, daylight modeling, will dictate specific solutions that will have to be achieved in order to maintain these points. In some cases, these decisions may impact existing design conclusions. When this occurs, the design team shall review these changes with City staff in order for them to understand trade-offs necessary in order to achieve higher point ratings.
- The 30% design assumes mechanical systems for the project that are highly sustainable, cost effective, and energy efficient. The systems for the project include only transit center related areas, and all private commercial tenant areas, while having to meet the high standards of LEED, are not included in the project scope and budget.
- Glass selection, building materials, recycled materials, locally produced materials, etc. will all be considerations in final design that will define the level of LEED that can be achieved. While the current 30% LEED Checklist reflects a high Gold level , the detailed design decisions will affect the number of points that in the end can actually be achieved.

Public Art:

- Certain enhancements to the design can be accommodated through a public art program. The building design needs to respond to City input regarding public art budget and the method of procuring and installing these elements into the building
- Public art pieces may include elements of history into the paving and walls along the walkways and passages of the project.
- Public art pieces may include lighted, festive lighting elements over the top and along the walkways to the bus platforms.
- Public art pieces may include a water feature at the entrance and entry feature art at the major drop off area and gateway to the project.

Cost:

- The existing 30% design as submitted has a current cost estimate of $19.4M. This includes a 10% contingency as well as the extensive canopy coverage envisioned at the earlier stages of the process. Based on the development suggested in this document, it is anticipated that the existing $4M in canopy design can be reduced by approximately 50%, to $2M, and the contingency reduced from 10% to 7.5%. These moves together will yield a cost estimate at approximately $17M. Assuming the project moves ahead at the proposed schedule, this estimate should hold through final design. Of course, the final design architects, whether RNL or another, will need to be extremely diligent to balance cost against enhancements to the building. Adding improved materials, color, and texture will only increase the budget. However, through diligent design development, and a careful use of enhanced materials, this estimate likely can be maintained. To be fully secure, RNL recommends that the City of Torrance seek $18M for the project, which will allow for final design to include many of the enhancements outlined in this report. Balanced with the reduced canopy area, this should be adequate to achieve the desired community objectives in design and image.
- Value engineering will obviously need to continue into the future. It is recommended that the City seek additional money to consider not building the parking lot and to allow for the parking structure to be built sooner rather than later. The design team anticipates that the parking structure will add approximately $8M.

The current 30% design package represents a level of work product that can be compared to a very extensive Schematic Design set of documents. While the level of detail in some areas is at the SD level, other areas of design are developed well in excess of SD, approaching completed design development level of work. This is the case with architectural detailing, structural systems, and MEP building systems, all of which have been advanced well beyond SD levels. Site development likewise is at a high level of completion, and the base building has been defined sufficiently to assure a high level of certainty for cost estimating and for documentation of the work that has undertaken to date. This includes site grading, site utilities, roadways and transportation, site civil engineering and overall landscape design.

While landscape, site lighting and furnishings are likely to change as the building is developed further, the level of detail currently in the package establishes the level of quality, the quantity, and general place holder for these items. The anticipated development of design can be accommodated within the overall parameters of the 30% set.

The architecture as well includes place holder values in all aspects of design, including those details that normally would be included in later phases of work. Again, while the design of the building will likely be modified to include the latest iteration of comments, these modifications presently are not expected to substantially change structure, mechanical, electrical, civil engineering design work done to date. Architectural changes are of documents. While the level of detail in some areas is at the Schematic Design level, other areas of design are developed well in excess of SD, approaching completed design development level of work. This is the case with architectural detailing, structural systems, and MEP building systems, all of which have been advanced well beyond SD levels. Site development likewise is at a high level of completion, and the base building has been defined sufficiently to assure a high level of certainty for cost

estimating and for documentation of the work that has undertaken to date. This includes site grading, site utilities, roadways and transportation, site civil engineering and overall landscape design.

While landscape, site lighting and furnishings are likely to change as the building is developed further, the level of detail currently in the package establishes the level of quality, the quantity, and general place holder for these items. The anticipated development of design can be accommodated within the overall parameters of the 30% set.

The architecture as well includes place holder values in all aspects of design, including those details that normally would be included in later phases of work. Again, while the design of the building will likely be modified to include the latest iteration of comments, these modifications presently are not expected to substantially change structure, mechanical, electrical, civil engineering design work done to date. Architectural changes are also going to be made, but here again, these changes are expected to be within the range of “design development” evolution rather than wholesale revisions in the existing design. In the normal course of work, the design will naturally evolve through study and development of the skin, color, texture, and materiality. The building form is not expected to change substantially, but subtle changes can be anticipated to introduce curvature to such areas as roof, balconies, exterior perimeter wall, or canopies. These evolutions in design are normal in what is expected in taking the design from 30% to 60% and any cost incremental increase can likely be covered in the pricing contingency being carried within the job. Likewise, with the current set of documents fully documenting a high level of detail, RNL believes that there is a high degree of certainty that the current budget can be achieved. The place holder inclusion of items such as interior finishes, building materials, colors, etc. provide that level of detail necessary to substantiate that belief.

The following sections of this document provide the guidance for the design team, whether RNL or another design build entity, to carry the 30% design forward from this point to a 60% deliverable. If RNL is asked to continue, the course to get to that point is very clear, and will be based on the meetings that have been held in recent weeks. If another firm is selected through a design build procurement process, they will take the information provided in this package, including the information in this Design Guidelines report, and develop their own answers in meeting the project objectives going forward.

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1.0 BUILDING FLOOR PLANS

1.0 Building Floor Plans

Background

In late September, 2012, a small group of City staff members from the Transit and Public Works departments met with the RNL design team for a workshop to review the building floor plans presented in the 30% design documents. Four 30% design document plan sheets were presented consisting of: Enlarged Transit Site, showing both buildings in their relation to each other and site elements; Enlarged West Building plan; Enlarged East Building Level-1 plan; and the Enlarged East Building Level-2 plan. RNL walked through all plans room-by-room to explain elements, address concerns and answer questions.

Generally, the building floor plans as presented in 30% design were accepted. Minor adjustments and further development of the interiors are required during the future project phase. Sheet A102 shows the enlarged Transit Center site.

Intent

- Provide transit center program requirements in a safe and inviting environment for transit patrons, transit center staff, and transit operators.
- Provide an efficient organization of spaces with interiors that are airy and day lit containing views out to the transit center plaza and gardens.

1.1 West Building

The building floor plan was generally accepted as presented in the 30% documents. See sheet A110.

Room furniture layout and finishes will be studied further as the design advances.

- Develop floor tile patterns within the Transit Store.
- Study the interior design of the counters and shelving within the Transit Store and Security Office.
- Provide further office amenities such as storage consoles, workstations and white boards within the Transit Store Office.
- Provide storage amenities within the Storage Room.

1.2 East Building

The building floor plans were generally accepted as presented in the 30% documents. See sheets A111 and A112.

- Room furniture layout and finishes shall be studied further as the design advances.
- Study floor tile patterns within the tiled rooms.
- Study correct placement of benches or built-in seating and planters within the Lobby and second level corridor.
- Provide a less conspicuous location for the second level water chiller that will allow for the south wall of the corridor to become a feature wall.
- Provide a location for a bulletin board and magazine racks within the Operator's Lounge.
- Study locations for white boards within the Open Office and Interview Room.
- Provide necessary storage amenities within the Copy Room.

1.3 Conference Room

Additional access to the Conference Room should be studied as the City wishes to include a second exit from the room. The access could either be a connection between the Conference Room and adjacent Simulator Room or a connection into the corridor. (Figure 1.3).

- Additional stacking chairs should be included and stored within the closet in the room.
- A/V components and lighting controls need to be developed to allow for overhead projection towards the south wall.
- Accessories such as white boards should be included and their best placement studied.

Figure 1.3 *A second Conference Room access point to an adjoining space is required within the area indicated.*

1.4 Training/Multi-Purpose Room

The Training/ Multi-Purpose Room, as its name suggests, is developed to serve multi-purposes; to act as a classroom training room for transit staff and as a presentation and conference room for City and public reserved events. The room is dividable into two equal halves by a ceiling hung operable partition that will neatly fold into the table and chair storage closet at the south-west corner of the room.

- Develop operable partition end closure conditions that will be functional and blend in with the architecture. (Figure 1.4).
- Provide robust stacking chairs and folding training tables that will be stored within the connecting storage room.

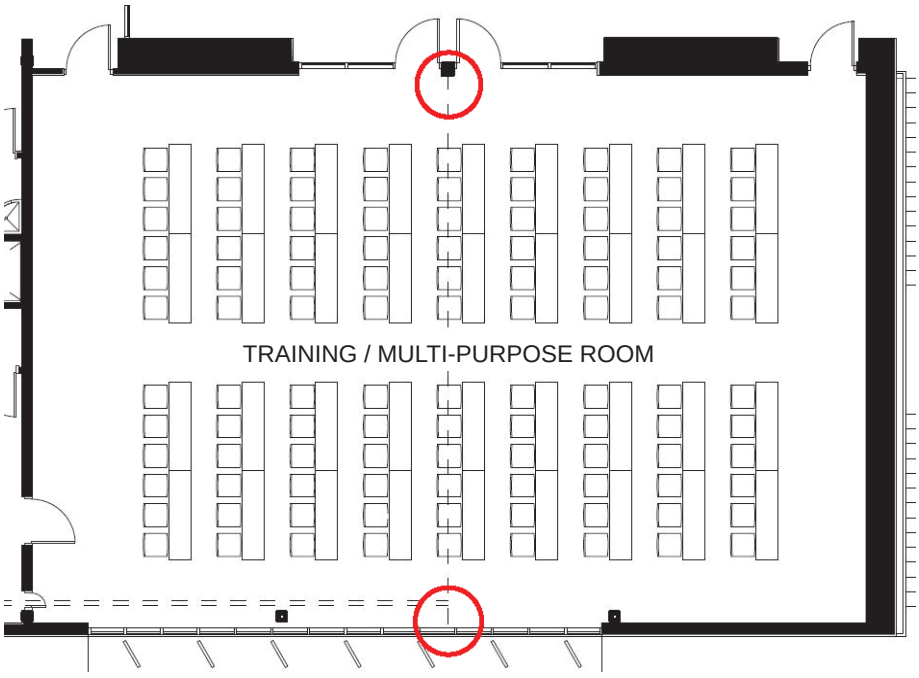


Figure 1.4 *Partition terminations need an eloquent solution.*

- Provide A/V components and lighting controls that allow both halves of the room to function independently with overhead projection towards both east and west walls.

1.5 Commercial Tenant Spaces

Two raw core-and-shell spaces are provided for commercial tenants. Electrical and plumbing connections are provided within each space. These connections are sub-metered. Mechanical systems are not provided in the 30% design as requirements will vary widely depending upon the final use of the space. Finish slabs have been left out of the space to allow for tenant flexibility in installing sub-floor utility runs.

- Upon securing commercial tenants, West Building commercial space #107 may be subdivided by constructing a partition wall running north-south located just west of the supplied service door and that a second service door opening should be framed out so at some time in the future, the opening could be knocked out and a door installed to access the west space. (Figure 1.5).

- The uses of split-unit or ceiling plenum mounted HVAC units for space conditioning are desired that have minimal exterior visual impact. Any ground mounted units shall be properly screened and landscaped to prevent vandalism and block unsightly views. Pending health department review, mechanical systems should be programmed to turn off if the exterior doors are propped open.

- Exhaust hood fans and venting should be located to have minimal visual and odor impact to the plaza, building openings and second building level.

- Provide daylight and occupancy sensors and LED or T5 light fixtures to reduce energy consumption and meet LEED requirements.

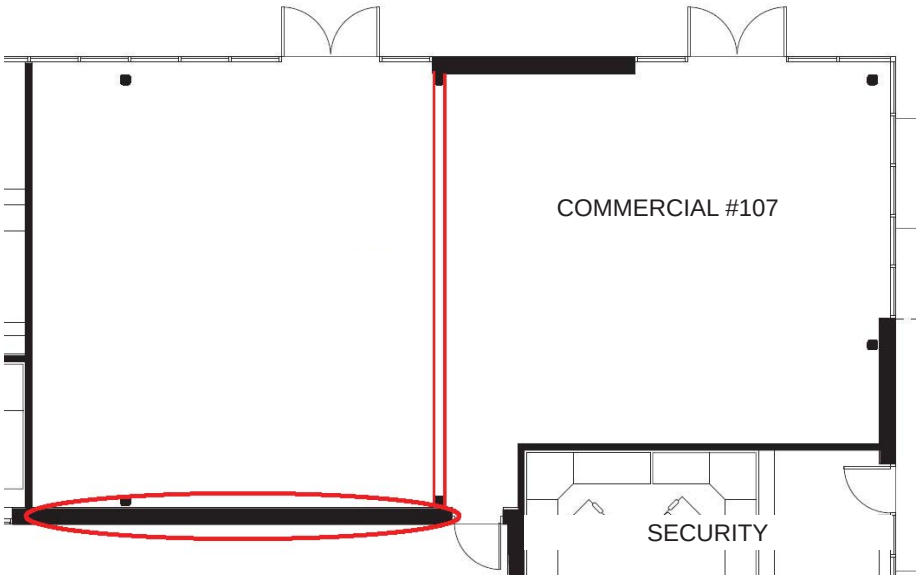
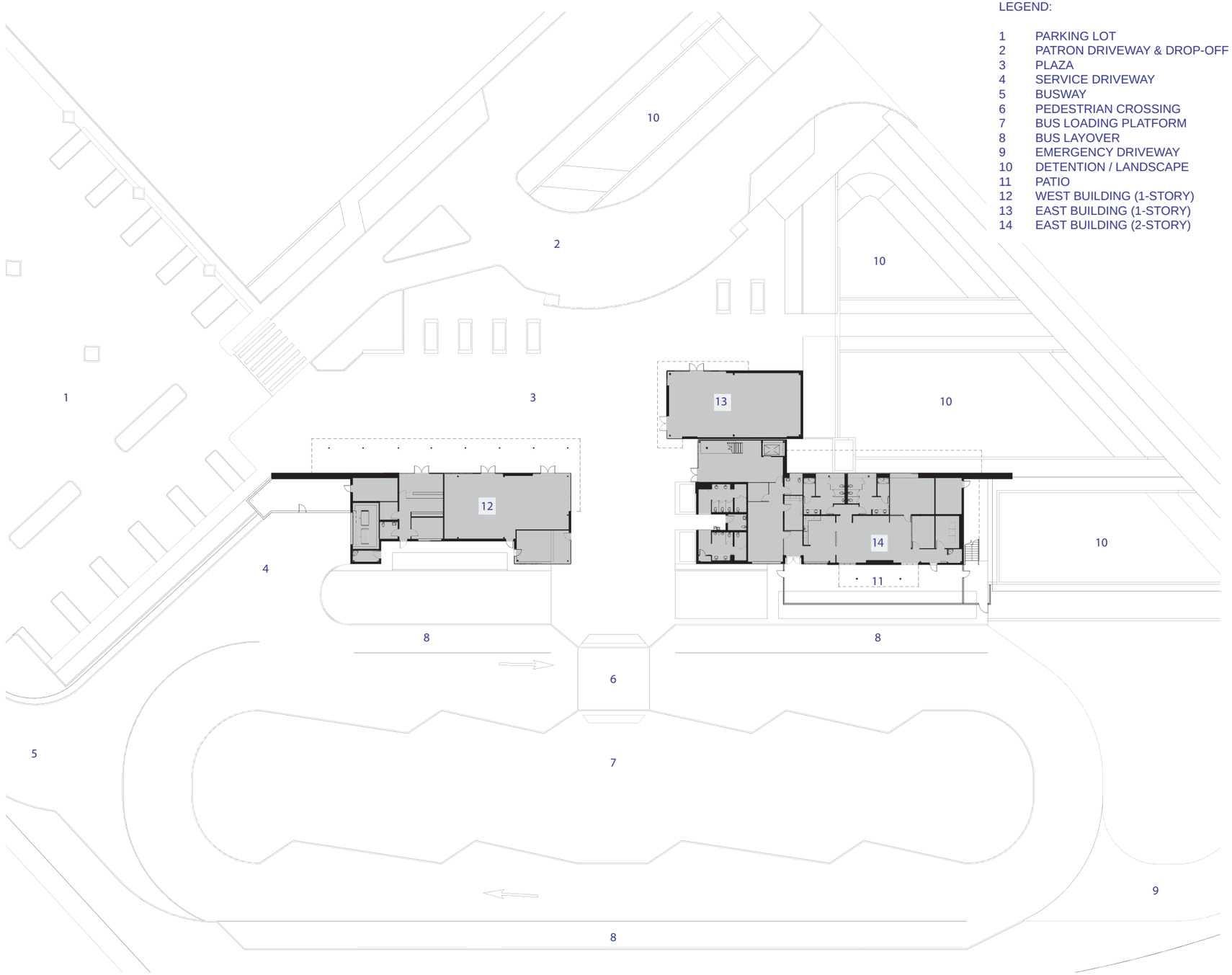


Figure 1.5 *Commercial space #107 may be sud-divided and a second service door added to the south wall.*



LEGEND:

1 PARKING LOT
2 PATRON DRIVEWAY & DROP-OFF
3 PLAZA
4 SERVICE DRIVEWAY
5 BUSWAY
6 PEDESTRIAN CROSSING
7 BUS LOADING PLATFORM
8 BUS LAYOVER
9 EMERGENCY DRIVEWAY
10 DETENTION / LANDSCAPE
11 PATIO
12 WEST BUILDING (1-STORY)
13 EAST BUILDING (1-STORY)
14 EAST BUILDING (2-STORY)

1 ENLARGED TRANSIT CENTER SITE
1/16" = 1'-0"

RNL
333 South Grand Avenue
Suite 1480
Los Angeles, CA 90071
213-955-5775 t
866-350-2616 f

CITY OF TORRANCE
TORRANCE TRANSIT PARK & RIDE
REGIONAL TERMINAL

465 CRENSHAW BLVD.
TORRANCE, CA 90503
30% CONSTRUCTION DRAWINGS

No	REVISION/SUBMISSION	DATE

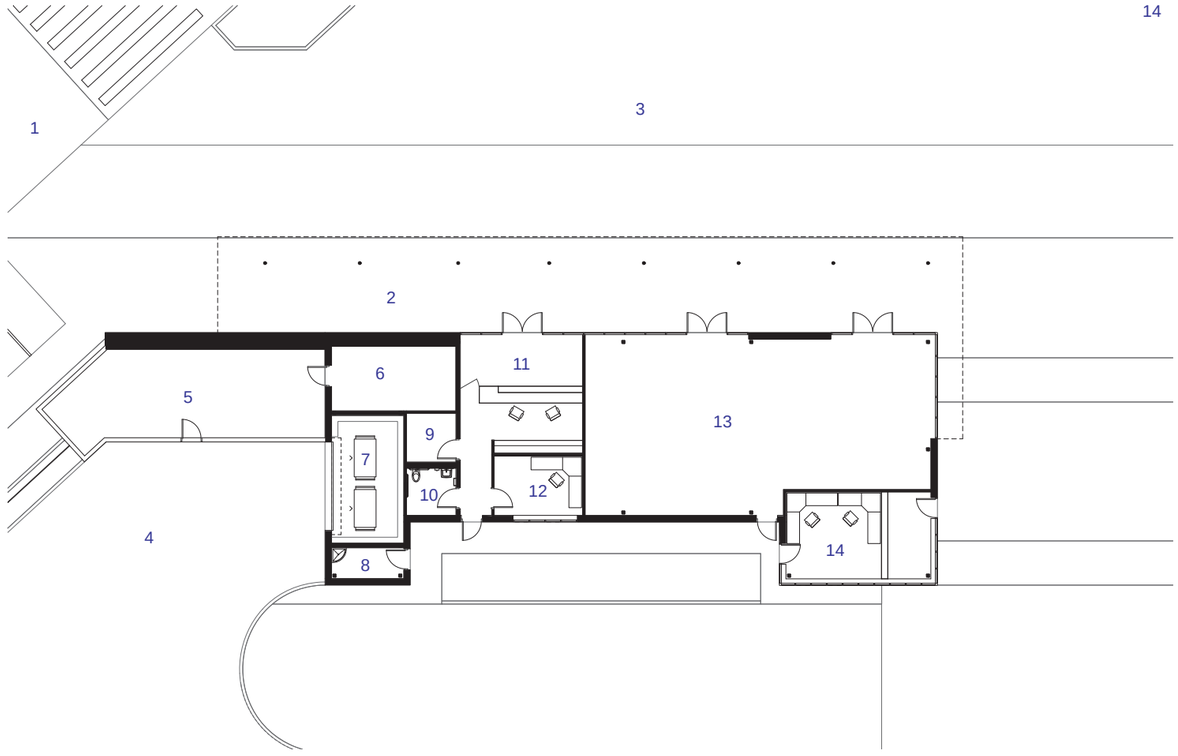
PROJECT No: 3293.01
DATE: 09/25/12
SCALE: 1/16" = 1'-0"

ENLARGED TRANSIT SITE PLAN

A102

LEGEND:

1 PARKING LOT
2 COVERED WALKWAY
3 PLAZA
4 SERVICE DRIVEWAY
5 ELECTRICAL SERVICE YARD
6 ELECTRICAL
7 TRASH / RECYCLE
8 JANITOR
9 STORAGE
10 UNISEX RESTROOM
11 TRANSIT STORE
12 OFFICE
13 COMMERCIAL
14 SECURITY



1 LEVEL 1 - WEST BUILDING
1/8" = 1'-0"

0 4' 8' 16'

NORTH

RNL
333 South Grand Avenue
Suite 1480
Los Angeles, CA 90071
213-955-5775 t
866-390-2016 f

CITY OF TORRANCE
TORRANCE TRANSIT PARK & RIDE
REGIONAL TERMINAL

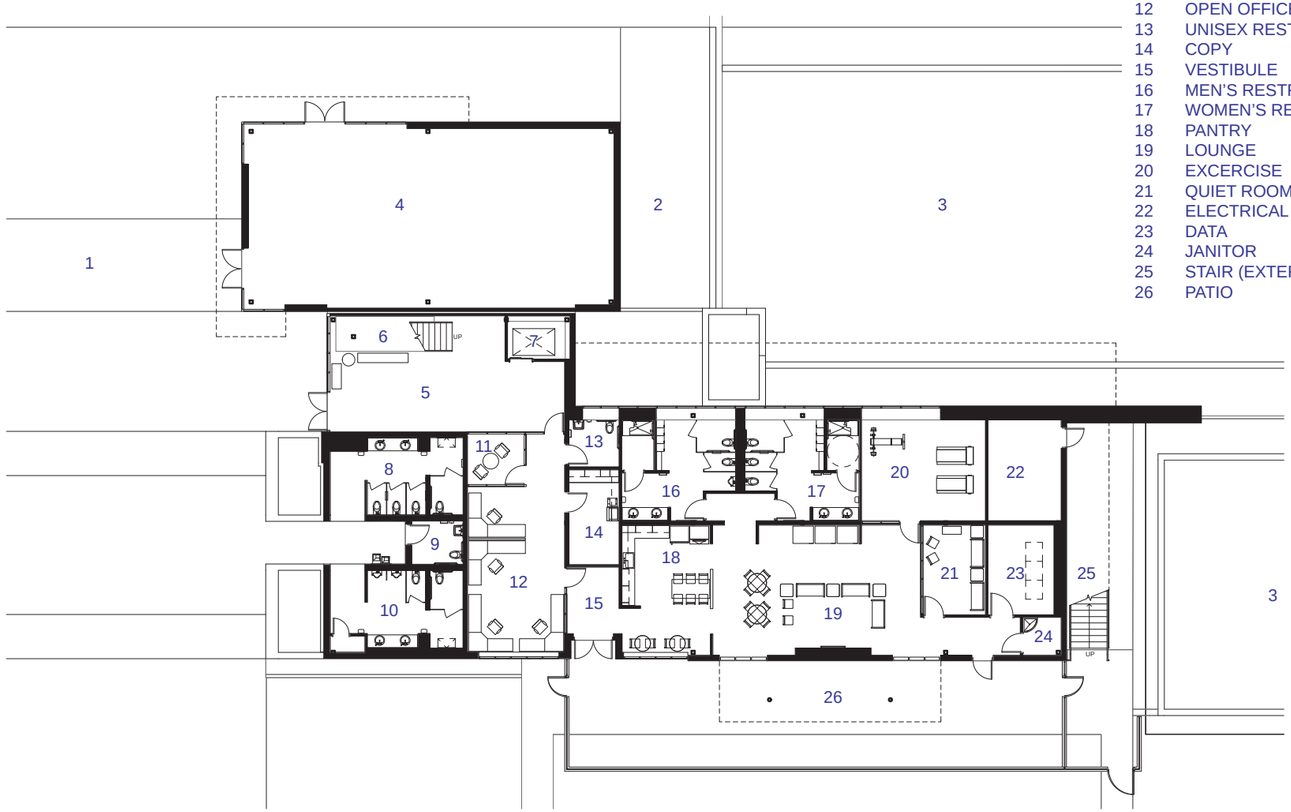
465 CRENSHAW BLVD.
TORRANCE, CA 90503
30% CONSTRUCTION DRAWINGS

No REVISION/SUBMISSION DATE

PROJECT No: 3293.01
DATE: 09/25/12
SCALE: 1/8" = 1'-0"

LEVEL 1 PLAN - WEST BUILDING

A110



LEGEND:

1 PLAZA
2 SEATING AREA
3 DETENTION / LANDSCAPE
4 COMMERCIAL
5 LOBBY
6 STAIR
7 ELEVATOR
8 WOMEN'S RESTROOM
9 VISITING OPERATOR'S RESTROOM
10 MEN'S RESTROOM
11 INTERVIEW
12 OPEN OFFICE / DISPATCH
13 UNISEX RESTROOM
14 COPY
15 VESTIBULE
16 MEN'S RESTROOM
17 WOMEN'S RESTROOM
18 PANTRY
19 LOUNGE
20 EXCERCISE
21 QUIET ROOM
22 ELECTRICAL
23 DATA
24 JANITOR
25 STAIR (EXTERIOR)
26 PATIO

1 LEVEL 1 - EAST BUILDING
1/8" = 1'-0"

0 4' 8' 16'

NORTH

RNL
333 South Grand Avenue
Suite 1480
Los Angeles, CA 90071
213-955-5775 t
866-360-2016 f

CITY OF TORRANCE
TORRANCE TRANSIT PARK & RIDE
REGIONAL TERMINAL

465 CRENSHAW BLVD.
TORRANCE, CA 90503
30% CONSTRUCTION DRAWINGS

No REVISION/SUBMISSION DATE

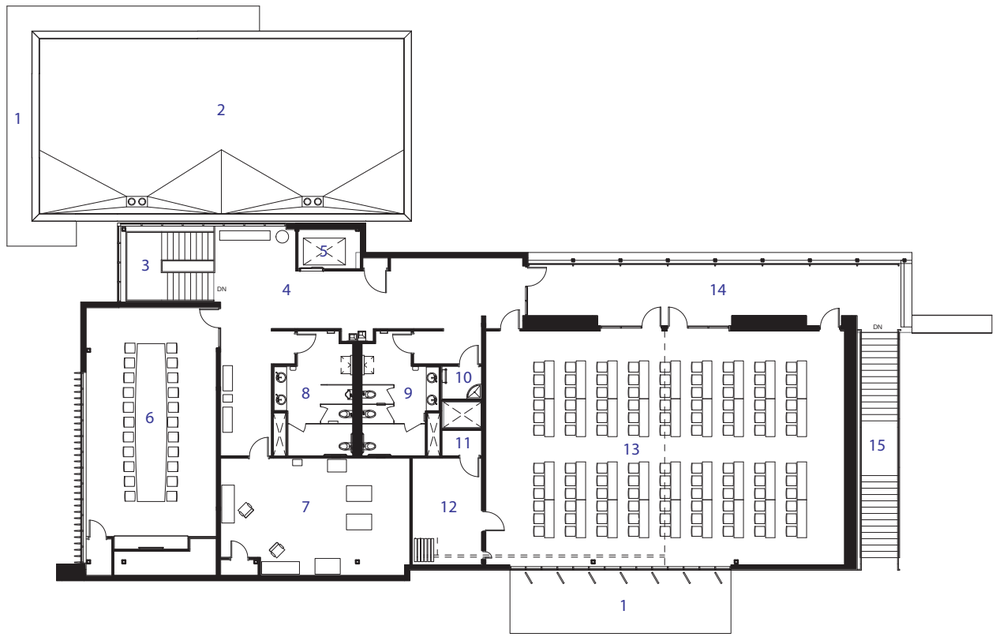
PROJECT No: 3293.01
DATE: 09/25/12
SCALE: 1/8" = 1'-0"

LEVEL 1 PLAN - EAST BUILDING

A111

LEGEND:

1 AWNING BELOW
2 ROOF BELOW
3 STAIR
4 CORRIDOR
5 ELEVATOR
6 CONFERENCE
7 SIMULATOR
8 MEN'S RESTROOM
9 WOMEN'S RESTROOM
10 JANITOR
11 IT
12 STORAGE
13 TRAINING / MULTI-PURPOSE
14 EXTERIOR WALKWAY
15 STAIR (EXTERIOR)



1 LEVEL 2
1/8" = 1'-0"

0 4' 8' 16'

NORTH

RNL
333 South Grand Avenue
Suite 1480
Los Angeles, CA 90071
213-955-5775 t
866-390-2016 f

CITY OF TORRANCE
TORRANCE TRANSIT PARK & RIDE
REGIONAL TERMINAL

465 CRENSHAW BLVD.
TORRANCE, CA 90503
30% CONSTRUCTION DRAWINGS

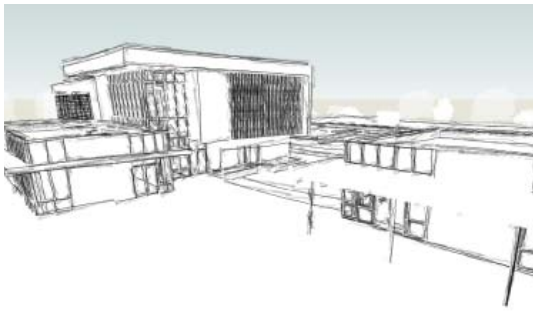
No REVISION/SUBMISSION DATE

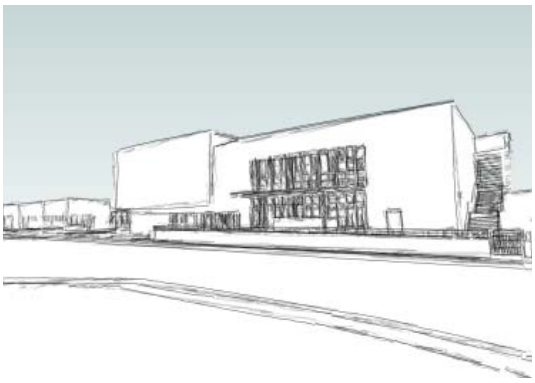
PROJECT No: 3293.01
DATE: 09/25/12
SCALE: 1/8" = 1'-0"

LEVEL 2 PLAN

A112

2.0 BUILDING ARCHITECTURE





2.0 Building Architecture

Background

During the same September 2012 workshop between the City's core team and the RNL design team where the building plans were reviewed, building architectural concepts and exterior treatment were discussed.

To start the discussion, the City's team presented a collection of images to discuss their preferences for certain architectural and site/ landscape treatments and forms. Some of their key architectural images are included here. (Figures 2.01 - 2.05).

The building architectural discussion was organized into the following categories: color, material and texture, and form. Perspective views of the 30% design buildings from the entry plaza having color and material stripped off the building were used as a basis for discussion. This allowed for the pure form and lines of the 30% design buildings to read clearly without interference of undecided materials and colors. (Figures 2.06 & 2.07).

Figure 2.01 *Metro's El Monte Bus Terminal: building planes vary in sleek materials here using metal and Trespa panels.*

Figure 2.02 *LA Live: building facades vary in architectural treatment using smooth and textured metal panels, glazed panels and neutral and bold colors*

Figure 2.03 *Metro's El Monte Bus Terminal: varying treatments for fascia, soffit and lighting adds interest.*

Figure 2.04 *Metro's El Monte Bus Terminal: dynamic tensile fabric plaza and bus platform canopies speak the same architectural language giving elemental protection.*

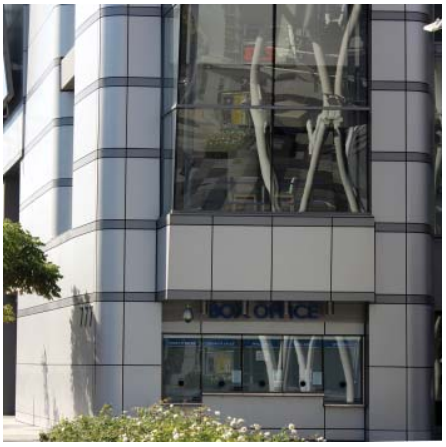


Figure 2.05 *LA Live: building edges are filleted for softening and pedestrian flow.*

Intent

- Create elegant and modern architectural forms, using sleek and durable materials and provides a hint of inviting softness.
- Provide accents of texture and color for “punch”.
- Provide durable and low maintenance surfaces at pedestrian areas that will withstand the abuses of heavy use and the environment.
- Give the buildings human scale and relationship to the public environment.
- Provide ability to see the activity in the public area of the buildings by day and night.

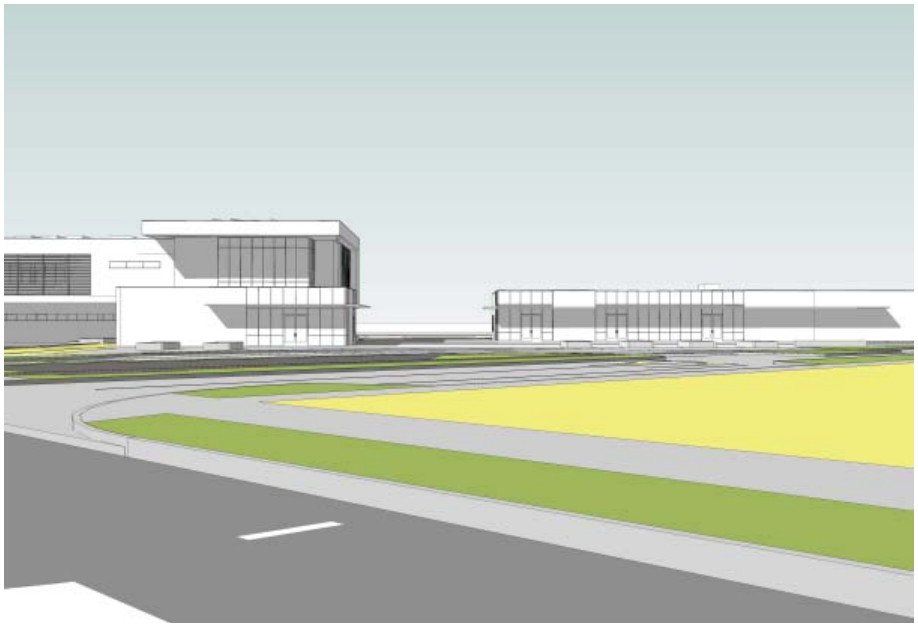


Figure 2.06 & 2.07 *Street entry and plaza perspective analysis views of 30% design buildings with landscaping, canopies, colors and materials stripped-off. The West Building awning has been cut back.*

2.1 Color

An introduction of the use of color into the building palette was presented for the City team to consider and give input to RNL's design team. Before we proceed to that discussion, it should be noted that the official colors of Torrance Transit are represented on their newer buses and that these colors correspond to the official City of Torrance colors. (Figures 2.08 & 2.09). See the Appendix for the official Torrance Transit color values.

During this process, RNL conducted a series of color studies based on the 30% design 3D model using a perspective view mentioned above. This perspective was rendered in different blocky color themes that were then represented by a collection of precedent images of buildings that demonstrate architectural techniques in which the color schemes could be achieved. The City's team indicted their preferences for color treatment by marking some of the precedent images for discussion. The following schemes and colors were chosen as appropriate for future study and recommendation. Refer to the Appendix for a complete catalog of all color schemes presented.

- Use bold color to highlight walls or wrap over roof fascias. Do not use them to blanket the building in color. The color range should be the same as, or work with, the City's colors of green, blue and gold. Whites are also appropriate to use. (Figures 2.10 - 2.14).

Figure2 2.08 & 2.09 *ModernTorrance Transit buses showing the City colors using fluidity in form and gradient. Neutral color sets a solid base.*

- Provide contrast between neutral and bold colors. (Figure 2.15).
- Do not use multi-colored panels and strips. (Figures 2.16 & 2.17).
- Provide special color and finish treatment in the soffits and under awnings. Include recessed lighting where appropriate for function and affect. (Figures 2.18 & 2.19).
- Provide views through the glazing and exterior screens to interior colored walls of interest. (Figure 2.20).
- Use neutral glossy finishes for metal panel infill that occur within window-wall systems, unless these panels are determined to be boldly colored.
- The bulk of bold color shall come from the fiber cement and metal panel applications and metal fascias. See Material and Texture section below.
- Use varying panels of medium shade green and blue glass within the window systems. (Figures 2.21 - 2.23).
- Do not use highly reflective or extremely darkly tinted glass within the exterior window systems. Transparency and reflectivity of glass shall ensure visibly from the pedestrian areas and minimize the glare produced by highly reflective glass and provide outside connections for building occupants.

Figure 2.10 *Favored color study: neutral base with bold color wrapping over fascia and highlighting panels.*

Figure 2.11 *Favored color study: larger panels of bold color with neutral fascias. Colors here more closely represent official color palette.*

Figure 2.12 *Favored color treatment: neutral base with reserved bold color "punch". Textured ares give interest using "soft" colors.*

Figure 2.13 *Bold color range is correct but blanketing the building in color is an incorrect statement.*

Figure 2.14 *Neutral colored facade is enhanced by a small hint of bold color near building entry.*

Figure 2.15 *Light and dark panels give good contrast. The use of bold color here is lacking.*

Figure 2.16 *Interesting color wrap but too much quantity of bold color and multi-colored panels are not desired.*

Figure 2.17 *Multi-colored strips is not desired.*

Figure 2.18 *Special soffit color and lighting.*

Figure 2.19 *Special soffit and awning bold color.*

Figure 2.20 *Potential areas for special treatment walls and areas for transparency.*

Figure 2.21 *Colored glass in window systems and parapets adds another layer of color and contrast.*

Figure 2.22 *Colored green glass within the appropriate color range: Viracon's "Green", "Twighlight Green", and "Evergreen".*

Figure 2.23 *Colored blue glass within the appropriate color range: Viracon's "Blue Green", "Azura", "Solar Blue" (not shown), and "Artic Blue".*

2.2 Material and Texture

An introduction of texture into the materiality and special element architectural treatment was presented. RNL highlighted presented the location of textures on the building presented in the 30% design stripped down building perspectives mentioned above and discussed the use of appropriate materials. Materials where presented in a similar format as color, with 3D view images highlighting where the materials would be applied to the building, followed by a series of precedent images and physical material samples to illustrate the point.

2.2.1 Material

The materials chosen by RNL for consideration were chosen for their appropriateness in durability and cost. They consist of: high-quality Fiber Cement Panel, Concrete Masonry, and Metal Panel. Shot-blasted finish, which is not as deeply textured as split-faced may be used for accent only. To maintain economy, curtain wall systems shall be limited to two story applications while single story applications shall utilize storefronts vertically separated and supported with structure.

- Provide durable high-quality fiber cement panels and/ or concrete masonry at ground floor pedestrian areas.
- Provide storefronts to commercial areas at plaza corners of buildings to increase visibility and access but to limit overall amount of glazed area for economy.
- Limit the use of metal panels to areas not prone to vandalism.
- Provide large sizes of fiber cement and metal panels in an adhered or concealed fastener application. (Figures 2.24 - 2.26).

Figure 2.24 *Large fiber cement or metal panels with concealed fastening. Colored panels not appropriate.*

Figure 2.25 *Large panel size is good, multi-colors and exposed fasteners are not.*

Figure 2.26 *Large fiber cement or metal panels. Visible fasteners are not appropriate.*

- Limit the use of concrete masonry to “back” areas not primarily visible from the street and plaza views. The use of concrete masonry at public restroom entries is acceptable.
- In more visible block areas, use larger sized “monumental” block. (Figure 2.27 & 2.28).
- Limit block colors to light neutral colors of consistent materials and textures, such as Basalite color “720” or Angelus “Glacier White” containing mica flecks. (Figures 2.29 & 2.30).
- Do not use traditionally freckled block colors. (Figure 2.31).

Figure 2.27 *Monumental block and accent banding.*

Figure 2.28 *Monumental block and accent banding.*

Figure 2.29 *Example of acceptable block color: Basalite “720”.*

Figure 2.30 *Example of acceptable block color: Angelus “Glacier White”.*

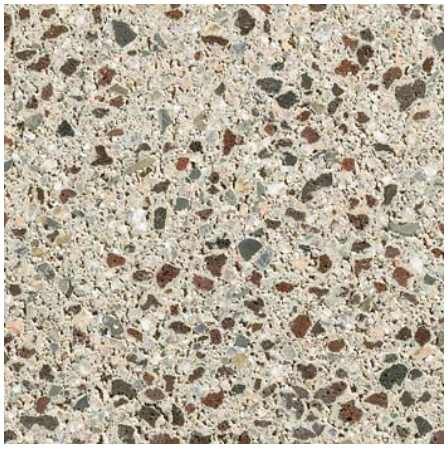


Figure 2.31 *Undesirable type of block coloring.*

2.2.2 Texture

It was concluded that texture should be applied in limited areas on the buildings. Primary textures deemed acceptable occur in two locations as presented in the 30% design. The main street view of the second level exterior walkway horizontal louver enclosure creates a texture of horizontal lines and shadows with a transparency that allows a view-in to the Training/Multi-Purpose Room wall granting the use of color on that wall to penetrate through the pattern. (Figures 2.32 & 2.33). Secondly, as patrons approach the plaza, the second level Conference Room window is screened with a vertical pattern that adds interest and broken shadows at this special-use room. (Figure 2.34). Except for these two textured locations, other architectural techniques to achieve primary texture were not well received by the City team as they desire the majority of the buildings to be sleek and elegant, not textural.

Figures 2.32 & 2.34 *Texture at 2nd level walkway attracts the eye. Transparency allows color to permeate.*

Figure 2.34 *Texture at conference room indicates a special use.*

- Use glossy smooth fiber cement and metal panel applications.
- Use honed and polished finishes for concrete masonry and smooth applications of metal and fiber cement panels. (Figures 2.35 & 2.36).
- Do not use textured or offset block or panels to create texture and shadows. (Figures 2.37 - 2.40).

Figure 2.35 *Example of desirable block accent banding.*

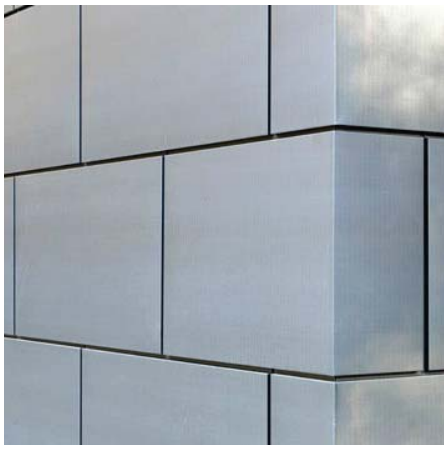


Figure 2.36 *Example of acceptable sleek metal panel application.*

Figure 2.37 *Example of unacceptable block accent.*

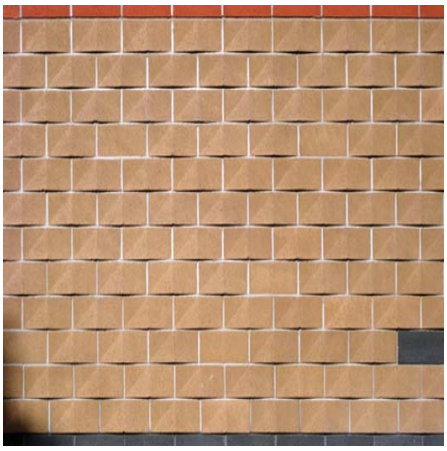


Figure 2.38 *Example of unacceptable block accent.*

Figure 2.39 *Example of unacceptable metal panel accent.*

Figure 2.40 *Example of unacceptable fiber cement panel accent.*

2.3 Form

2.3.1 Building Form

An introduction of the use of curvilinear forms to roof parapets, some façade elements and canopies in order to create more "punch" to the overall design of the buildings were presented for the City team to consider. Overall similar modern horizontal blocky forms seem acceptable as presented in the 30% design however the City desires to have softer edges and a more inviting feel. Precedents of curved roof lines, fascias, edges and walls were shown with The City's team favoring horizontal curving fascias and roof lines, similar to the Getty Center image (Figure 2.41), over vertical curved roof and awnings (Figures 2.42 & 2.43). The soft feel at the Getty was achieved while using rectilinear buildings as a backdrop to curving fascias which would not be difficult to achieve on this project. Potential areas on the buildings were identified that could receive softening treatment without much affecting the plans and building structure. These areas were the: upper roof overhang, glazed corner at the interior stair, adjacent corner of the conference room, awnings, some glazed areas at the commercial spaces and Operator's Lounge.

- Introduce horizontal curving forms to roof edges and awnings that are of a similar language to the free standing canopies and site patterns that may speak to pedestrian and or wind flow. (Figure 2.44).

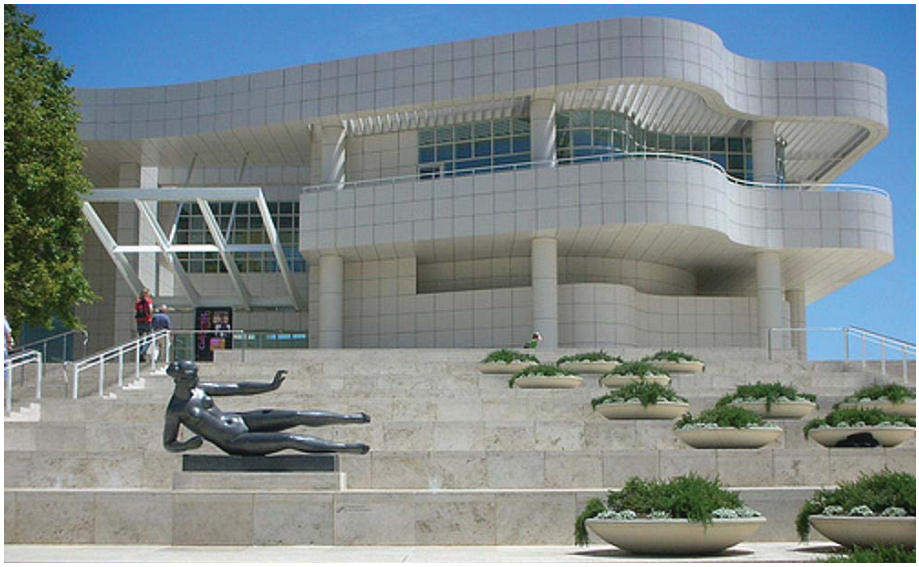


Figure 2.41 *Getty Center: a highly desirable representation of form; rectilinear building as basis for fluid overhanging forms.*

Figure 2.42 *An unacceptable example of a forced curve roofline.*

Figure 2.43 *A overly whimsical example of an applied awning form.*

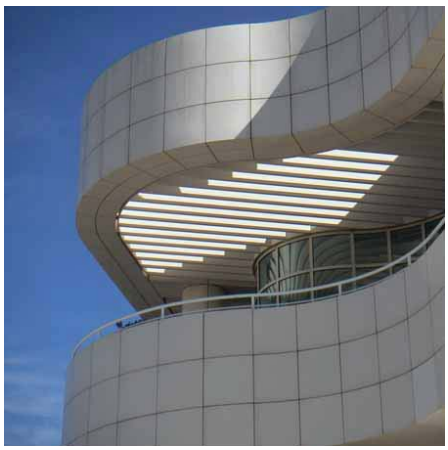


Figure 2.44 *Getty Center: A close-up of appropriate horizontal curves.*

- Smooth some highly visible edges of the building to soften the corners. (Figures 2.45 & 2.46).
- Study the introduction of glazed curves at commercial areas and the Operator's Lounge.

2.3.2 Awnings

Visible in the 3D 30% design model and the drawings are the pedestrian level canopies that are connected to the buildings, here called awnings. Three awning locations exist, at the: Operator's Patio for rain and sun protection and interior sun protection; at the Commercial space #106 for minimal rain protection at the doors and interior sun protection; and at the north and east sides of the West Building to create a covered walkway. The City's team expressed their concern that the amount of columns within the plaza, which includes the freestanding canopy and awning columns, is too great, limiting the plaza's usability, flexibility and creating more pedestrian obstacles than necessary.

- Reduce the dimensions of the West Building awning in the plaza to an acceptable comfortable walking width while eliminating the row of West Building awing posts to and provide awning support from the building. (Figure 2.47).
- Study raising the West Building and East Building commercial space parapets to accommodate awning structural support while maintaining the overall current massing of the buildings.
- Match the language of all three awning locations to each other with an introduction of horizontal curves as mentioned above.
- Study awning roof drainage to limit dripping into pedestrian flow and function areas disguising leaders and downspouts.

Figure 2.45 *Getty Center: a fine example of simple softened forms.*

Figure 2.46 *Another simple example of softening building edges.*

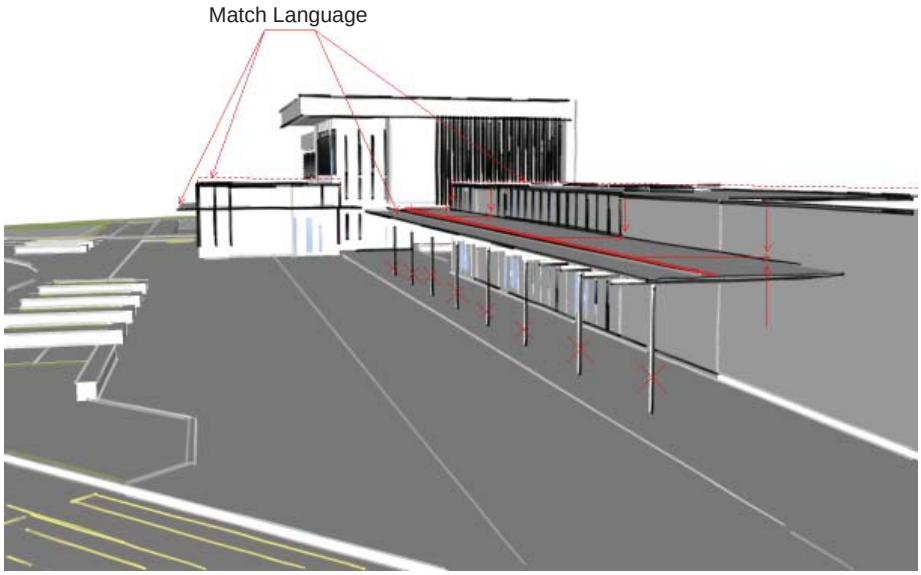


Figure 2.47 *Awning modification diagram.*

3.0 BUILDING INTERIOR DESIGN

3.0 Building Interior Design

Background

For the 30% design, it was necessary to secure a credible price for interior design related items. These items include most FF&E indicated presented in the 30% design. During the design process, the City gave minimal input to the design team on required elements leaving the design team to use their professional judgment and experience on similar projects to include in the documents.

During the process, the City had indicated floor finish types by major use space to give a basis for selection. Carpet and ceramic tile are used almost exclusively in occupied spaces and restrooms while utility flooring and sealed concrete is used in back-of-house areas. In addition, for flexibility and economy, the City had given their approval to provide only raw spaces with the finish floor slab left out of the commercial tenant spaces, painting only the exposed structure and gypsum board surfaces and installing only code required lighting.

In the third design workshop help in September 2012, physical material samples of recommended materials were presented to the City's core team. These included a range of recommended carpet tile, porcelain tile, solid surfaces, paint, wood, and toilet partition finishes. (Figures 3.01 & 3.02). The City's team indicated their preferences for future design direction. These preferences and images of the materials are listed below.

Figures 3.01 & 3.02 *Variety of appropriate materials and finishes presented.*

During the workshop, a brief discussion of furniture indicated that primarily, the furniture needs to be robust enough to handle daily use by the operators and look contemporary to fit in with the language of the building. No specific furniture was selected.

It is required during the future design phase, to complete the interior design and selection of furnishing and equipment necessary for the client's wishes and to balance within the given budget and allowances for FF&E. In addition, the interior room layouts will require further feedback and in-depth room-by-room study.

Intent

- Provide durable and easy to maintain materials with a contemporary feel.
- Provide a solid basis for timeless interior colors and materials within heavy use areas.
- Provide robust but contemporary furnishings that provide flexibility within work, break and training areas.
- Meet LEED sustainability requirements through the use of high recycled content and low VOC emitting materials.

Figure 3.03 *Examples of appropriate interior design concepts.*

3.1 Finishes

Material preferences to set the basis for final interior design:

- Carpet Tile: Office areas: Signature Carpet, Yellowstone Collection. No specific color preference identified. Meeting Rooms: Bentley Prince Street, So Vintage collection, “Film Parade 407228”. (Figures 3.04 & 3.05).
- Porcelain Tile: Bright and airy neutral colors. Preference: Caesar, Tecnolito collection in “Perla”, matte, gloss and textured finishes. (Figure 3.06).
- Wood: Stained dark brown for furniture and millwork. NuCraft in “G54 Sorrel” Flat Cut Oak (dark stain). (Figure 3.07).
- Solid Surfaces: Silestone, Platinum series in “Chrome”. (Figure 3.08.
- Toilet Partitions: Solid textured plastic for ease of maintenance and durability. Scranton Products, Classic collection in “Blueberry” and “Hunter Green”. (Figure 3.09).

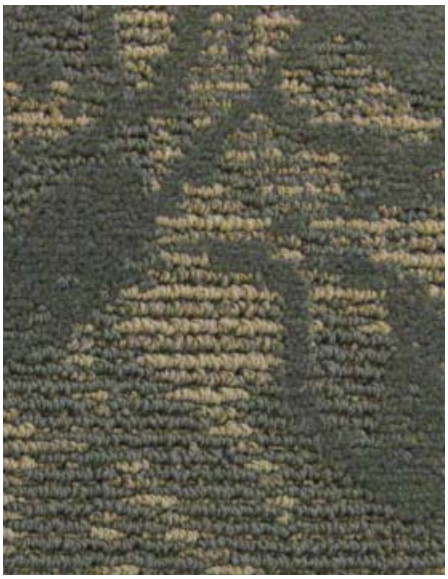


Figure 3.04 *Signature Carpet’s “Yellowstone Collection”.*

Figure 3.05 *Bentley Prince Street’s “Film Parade”.*

Figure 3.06 *Ceasar’s Tecnolito in “Perla”.*

Figure 3.07 *NuCraft in G54 “Sorrel” flat cut oak.*

Figure 3.08 *Silestone’s Platinum “Chrome”.*

Figure 3.09 *Scranton Products Classic “Blueberry” and “Hunter Green”.*

3.2 Furnishings

Furniture location and types indicate in the 30% documents was considered acceptable as a basis for final selection. During the design workshop discussion, the City indicated that all staff furniture needs to be robust able to handle heavy use and weights imposed particularly the break room, lounge and training room chairs and tables. Furnishings also must include window covering, whiteboards, and other accessories to be identified and the in-depth room studies commence. Some examples of appropriate furnishings were presented to the City team with their preferences leaning towards the modern cleaner lines, silver metals and darker woods. (Figures 3.10 & 3.11).

Figure 3.10 *Examples of seating.*

Figure 3.11 *Examples of office furniture.*

- Provide robust and contemporary furnishings upholstered for easy maintenance and heavy wear that works with the final interior design.
- Provide a variety of armed and armless break room chairs.
- Provide recliners and bookcases in the Quiet Room.
- Provide additional stacking chairs for the Conference room and Training/ Multi-Purpose room.
- Provide folding tables for the Training/ Multi-Purpose room.
- Provide whiteboards within the Transit Store Office, Open Office, Interview Room, Conference Room, and Training/ Multi-Purpose Room.
- Provide bulletin boards and magazine racks within the Operator's Lounge.
- Provide window covers possible of blocking glare and outside light making screen viewing functional within the Conference Room and Training/ Multi-Purpose Room.

3.3 Equipment

30% design equipment is not fully defined. Some elements are identified in the 30% design and included in the budget. Finish design needs to include all equipment that is not Owner provided and installed.

- Provide pantry equipment as required in the program consisting of commercial microwaves, coffee makers and an ice machine.
- Provide Exercise room equipment to meet the City's desires and budget.
- Provide Simulator Room equipment to meet the City's requirements. 30% design floor plans show the intended layout that includes: 1 workstation, 1 dispatch trainer, 1 farebox trainer, 1 lift training, and 2 driver simulators with one projection screen. There are numerous ways to achieve the requirements in this room and the applicable ones must be studied and compared to the City's requirements and budget.

4.0 CANOPIES

4.0 Canopies

Background

At the end of the 30% design phase, the form and location of the canopies were a result of multiple influences, comments and feedback received throughout the design process.

The 30% Design project's tensile structure canopies may be broken down into four areas: Main Entry 4.1), Plaza (4.2), Busway Crossing (4.3), and Bus Platform (4.4). See Figures 4.1 and 4.2 for a site plan with canopy locations identified. During the meeting, each canopy area was discussed with the intention of identifying functionality and aesthetic concerns. The City's initial reaction to the 30% Design canopies was that they should be more fluid and clean, containing less visible steel structure, and leave the form of the canopy to the fabric. (Figure 4.3, 30% Front View Canopies) (Figure 4.4 Fabritec Entry/ Plaza Canopy)

In conclusion, it was resolved that the amount of outdoor cover on the project at the conclusion of 30% Design was excessive. Reduction of unnecessary canopy cover will result in a more simplistic and aesthetically pleasing environment containing a more functional plaza with an overall reduced cost to the Project. Through further design, the "twisted ribbon" canopy theme, based on the Bard College canopy, could provide the "wow factor" desired by the City. (Figure 4.5).

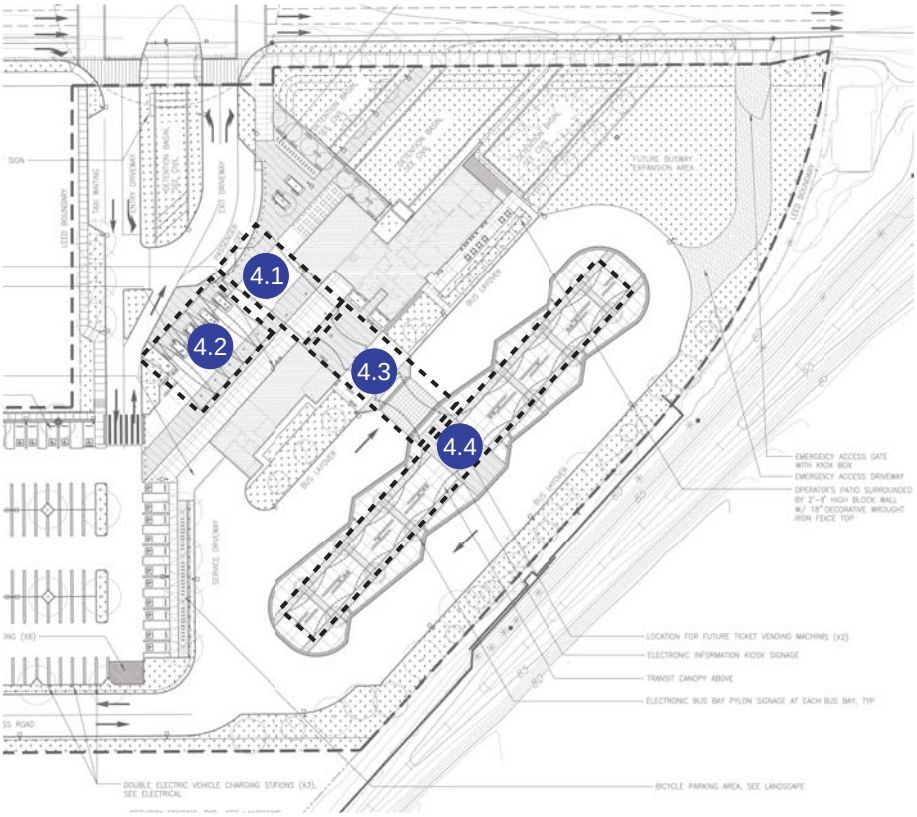


Figure 4.1 *30% design proposed canopy locations*

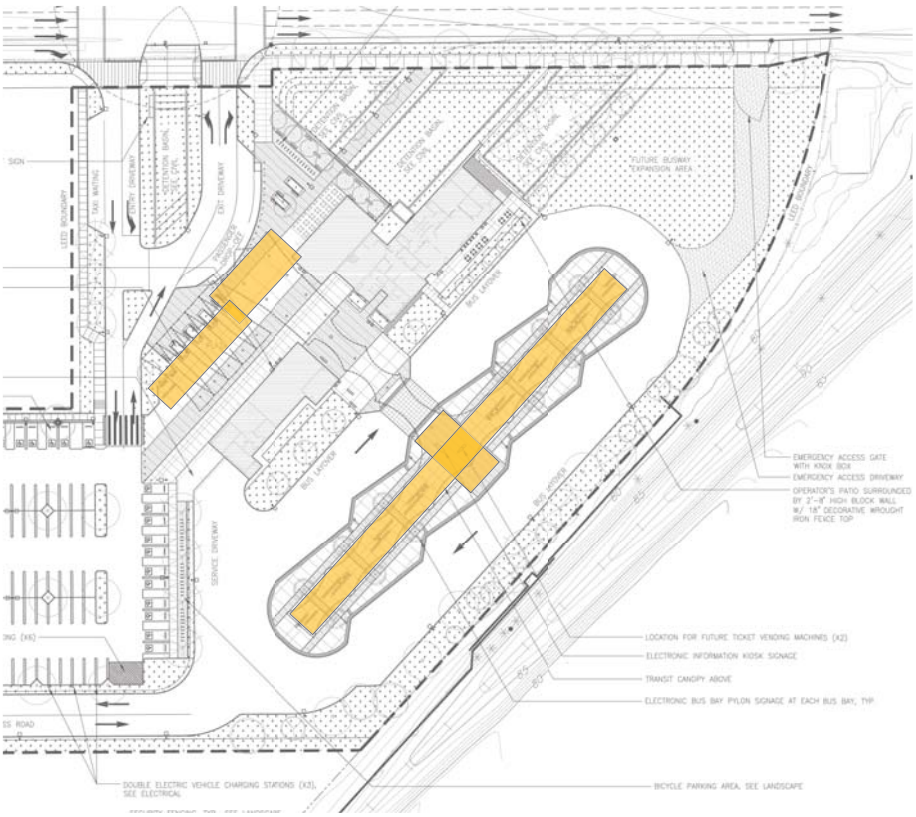


Figure 4.2 *Recommended canopy locations*

Intent

- Provide sun and rain protection for the main seating areas at the transit center including the front plaza and bus platform.
- Provide a main entry canopy that is iconic, unique, and the main design statement for the site. The canopy should maximize its visual exposure to Crenshaw Blvd. in a language reminiscent of a twisted ribbon.
- Plaza and bus platform canopies shall utilize similar design language to the main entry canopy but be more simplified and restrained.
- Locate canopies where identified in the diagram for the patron waiting areas, entries, and site nodes or intersections.
- Canopies shall be designed with highly durable tensile architectural fabric. Structural supports for all canopy structures shall be minimized to the greatest extent possible without using structural masts or visible tensioned cables.
- Use tree column forms for canopy columns providing decorative treatment in key locations. (Figure 4.4).
- Use vertical, fluid, curvilinear forms to express passenger flow, environmental factors and give a "wow" factor from the street.
- Provide controlled drainage of rainwater from canopies in such a way as to minimize unwanted water in pedestrian walkways and waiting areas.
- Incorporate ambient and thematic lighting to the canopies:

1. White, general lighting should create a lantern glow visible from the transit center approach and Crenshaw Blvd. Canopy lighting should also be considered for ambient lighting within the plaza and at the bus platform.
2. Incorporate colored lighting in the front canopies that can be easily controlled by the transit staff. Canopy lighting shall adjust to the seasons, time of night, or client's wishes. Maximize the lighting effect while minimizing the visibility of the light fixture itself. (Figures 4.6 & 4.7).
3. Lighting shall illuminate the ground plane to a safe level for primary circulation and gathering while providing accurate color rendition for security cameras.

Figure 4.3 *30% design canopies*

Figure 4.4 *Acceptable canopy tree columns.*

Figure 4.5 *Bard College's "twisted ribbon"*

4.1 Main Entry

- The canopy at the main entry shall be the main architectural feature of the site; creating an icon and marker for the transit center. The City has expressed a preference for a canopy design similar to one seen at Bard College which resembles a 'twisted ribbon'. (Figure 4.5 and Figure 4.8)
- Visibility from Crenshaw Blvd. is essential. The form should create a recognizable icon at the speed of vehicular traffic, while also including detail and materials which can be appreciated at the pedestrian scale.
- The Client has indicated a preference for minimal columns in tree form at the main entry to minimize visual and access impacts.
- The long edge of the entry canopy shall be parallel to the drop-off loop.
- Canopy edge shall flare-up and overlap with retail building and plaza canopy. (Figure 4.8 & 4.9).

4.2 Plaza

- The plaza canopy shall be located along the northern edge to protect the seating area near the passenger drop-off. The number of columns supporting the canopy shall be minimized to meet the City's goal of creating an open plaza space between the western building and the canopy.
- Consideration should be given to the sun angles throughout the year and preference given to protecting the seating area from direct sun during the summer months.

4.3 Busway Crossing

- Early in the design process the City expressed a desire to provide rain protection along all major pedestrian pathways; however, the cost of such an extensive canopy system became prohibitive. The portion of canopy (4.3) connecting the entry canopy (4.1) and the bus platform (4.4) were deemed, by the City, as unnecessary. The busway crossing section of canopy is no longer required.

4.4 Bus Platform

- Sun and rain protection are essential requirements for the bus island canopies. Transit center patrons will spend numerous hours throughout the year, and through all extremes of weather on the bus platform; the design shall consider local climatic data in responding to the weather protection requirement.
- The design language of the bus platform canopies shall be similar to the canopies at the transit center entry and plaza. All canopies should be cohesive and create a layered composition.
- The intersection of the bus island with the busway crossing creates a node where people can buy tickets, get information about their bus status, or meet a friend. This node shall be marked by a design gesture expressed in the canopy. The canopy scale and presence shall indicate the importance of the intersection.

Figure 4.6 *Mostly white light with colored accents*

Figure 4.7 *Special event or festive lighting*

Figure 4.8 *Bard College's "twisted ribbon"*

Figure 4.9 Canopy Sketch

5.0 SITE DESIGN

5.0 Site Design

Background

Throughout the 30% design process, the arrangement of site elements had been coordinated with the City team and reviewed periodically during team meetings and presentations. 30% site design started with, and is compatible with, the City Council approved site Master Plan with the main difference being the removal of the parking structure. During the September 2012 workshops previously mentioned in this report, the site arrangement was further reviewed in detail and minor modification were identified, some of which were picked up within the 30% design documents, some which will require further design study were not and are included within the guidelines and standards here.

The September workshops also served as an in-depth presentation of the landscape concept where hard and softscape materials, precedents, and plant species were introduced. The 30% design consisted of RNL recommended hardscape treatment, seating and plantings that fostered some concern with the City team.

Of main concern were:

- The use of pavers and paving joints would present a hazard for high heeled shoes and that improper construction may lead to future uneven surface issues.
- The use of crusher fines (decomposed granite) surfaces are incompatible with anticipated site maintenance.

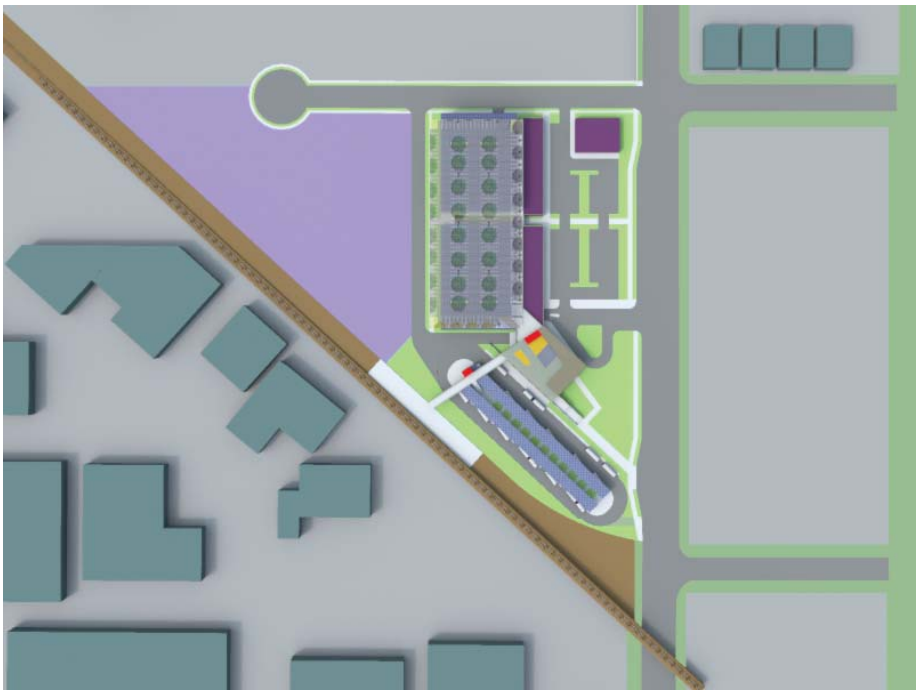


Figure 5.1 *Surface parking lot superimposed over the Master Plan with TOD build-out*

- The Municipal Code required street tree spacing of 50-ft and previously identified street tree species, Southern Magnolia, would not allow for the intended visibility of the Transit Center from vehicles travelling along Crenshaw Boulevard.
- Palm plantings intended for the bus platform would cause maintenance issues and any potentially falling fronds may damage the tensile fabric canopies.
- Public art needs more incorporation into the site.

As described below, these concerns and others along with further site design refinements are required during the future design phase of the project.

Master Plan Compatibility

As mentioned, the 30% design site plan was derived from and is compatible with the City Council approved site Master Plan. Because of discrepancies between the project budget and Master Plan, the main site element identified for removal from the 30% scope was the construction of the parking structure. For proper and efficient planning, it must be assumed that the parking structure will be constructed in the future. Ideally, the parking structure would be constructed within a site area where its construction would not affect other site uses, except possibly the surface parking lot. Therefore, the 30% design surface parking lot was positioned to fall within the parking structure footprint where the east pedestrian sidewalk would run between the parking structure and the anticipated

future TOD building footprints. (Figure 5.1). The construction of the parking structure could occur over the surface lot where the lot becomes the ground level of the structure. The development of the northeast TOD parcel would remain unaffected (depending upon construction staging) allowing for full development of three commercial buildings and a surface parking lot and landscaping as required by the Master Plan.

The 30% design phase of the northeast development parcel consists of rough grading and temporary seeding with native grass species. Grading would include stormwater capture for the development parcel itself in a small detention facility located in the northeast area of the parcel. In the future, the developer of the northeast parcel would be required to bring utilities, make driveway connections and provide stormwater treatment facilities capable of meeting the Master Plan and code requirements.

Intent

- Provide an attractive landscape and hard surface design that is safe for pedestrians, complements the architecture and canopies, and is sustainable. The overall site plan as presented in the 30% design submittal has been approved as consistent with the master plan and appropriate for the intended development of the project.
- Provide an 80% native plant palette that gives a regional sense of place to the transit center.

5.1 Site Parking

- Provide a 245 space parking lot with standard asphalt and a raised concrete curb as shown in the 30% design documents. Parking lot shall have 20 ADA designated spaces distributed between the two closest rows to the plaza entry. Required spaces for LEED, 26 total, will be located in the next two closest entry areas. The 16 employee spaces will be placed at the northeast end of the pedestrian spine aligned with the entry plaza. This spine will have ornamental trees, pedestrian light poles, curb stops, and a flush sidewalk condition. Motorcycle parking and three charging stations capable of charging six electric vehicles shall be placed in the southwest corner of the parking lot. The remaining 183 spaces are designated as public parking.
- Locate small planting zones in the parking islands at the ends of the parking aisles.
- Place interior trees within a 7-ft wide raised planting area enclosed by a 6-in curb.
- Coordinate with the City concerning the exact quantity of required parking lot trees in the “temporary lot”.
- Lot lighting shall consist of 27’ tall poles with double luminaire heads on the interior of the lot and perimeter ends. The pedestrian spine along the northeast edge shall have 15’ tall poles and unique luminaire head and closer spacing.

Figure 5.2 *Parking lot planter (4’ wide).*

- Provide four parking spaces for Supervisor vehicles within the bus loop area sufficiently close to the employee building entry for quick response.
- Provide an emergency access gate at the north of the lot exiting onto W. 208th Street.

5.2 Site Lighting

The site lighting will be accomplished through a combination of down lights mounted on poles (Figures - 5.4 & 5.5), in-grade lights (Figure - 5.6), and overhead canopy lighting (Figure - 5.7). The final combination will be further developed during the detailed design phase and may not contain all elements upon further study.

- Provide all LED light fixtures to meet LEED requirements. (Figure – 5.3).
- Refine pole design and placement during the detailed design phase of the project. In general, all lighting will be provided for adequate safety and security, and to provide a general lighting scheme that will enhance wayfinding.
- Provide fixtures with curved and soft forms relating to the architectural and landscape design (Figure - 5.4).
- Provide overhead event lighting within the plaza.
- Provide public street lighting necessary for City and code requirements.

Figure 5.3 *LED luminaire head.*

Figure 5.5 *Down lit street / pedestrian poles.*

Figure 5.6 *In-grade lighting.*

Figure 5.4 *Curved street light poles.*

Figure 5.7 *Bench placement along a curve.*

5.3 Site Furnishings

Site furniture were selected during the workshop process. The selected basis-of-design furnishings consist of a series of Landscape Forms products. These include the backed and backless Stay bench with seat dividers (Figures - 5.8 & 5.9). The stainless steel Bola bike rack (Figure - 5.10), and the Petosky litter and recycling receptacles (Figure - 5.11).

- Locate furnishings on-site to enhance the pedestrian experience (Figure - 5.12).
- Provide furniture that minimizes maintenance, reduce vandalism and vagrancy, and prevents skateboarding.
- Selected furnishings with simple clean lines that add to the architectural character of the site.
- Provide commercial quality furnishings to withstand the heavy use expected at a transit center.
- Select a combination of powder coated colors and graffiti resistant finishes that match or complement the architecture.
- Do not use wood or plastic materials.

Figure 5.8 *Backed Stay bench.*

Figure 5.9 *Backless Stay bench with seat dividers.*

Figure 5.10 *Bola bike rack.*

Figure 5.11 *Petosky litter and recycling receptacles.*

Figure 5.12 *Bench placement along a curve.*

5.4 Fencing

- Provide three levels of fencing on the property used for security. Use wrought iron fence incorporating some curving members (Figures - 5.13 & 5.14) and refined details along Crenshaw and around the operator's patio (positioned upon a short solid wall). Use welded wire security fencing (Figure - 5.15) to inhibit climbing and maintain maximum visibility located along the south and west sides of the parking lot. Use a coated chain link fence (Figure - 5.16) to run along the western property line parallel to the railroad tracks and as temporary fencing along the west side of the bus access road.
- Relocate the bus gate towards the south end of the bus access road at the entry to the bus loop. Make this gate lockable and motorized. Provide a knox box for fire department access.
- Provide a similar vehicle gate for emergency access at the south access driveway. Provide a knox box at this gate.
- All fencing material shall be colored or powered coated to match the architecture. Final configuration and lengths of types used shall be further developed in the next phase.

5.5 Hardscape Design

- Create the plaza as an event space by densifying its perimeter through a combination of vertical elements, plantings and seating.
- Locate the plaza canopy somewhere between the "outdoor rooms" being created at the north side of the plaza along the drop-off and the main functional plaza space. (See the Canopies chapter). Its columns should cause minimal interference for the plaza's flexibility and will mainly shade the "outdoor rooms" casting early-day shade into the plaza. The southwest plaza edge will be formed by the West Building and its awning.
- Further develop the plaza edge to the parking lot to create a "gateway" feel from the parking lot.

Figure 5.14 *Wrought iron fencing with simple curved tops.*

Figure 5.15 *Welded wire mesh security fence.*

Figure 5.13 *Wrought iron fencing with curved details. Wood is not appropriate.*

Figure 5.16 *Black chain link fencing. Barbed wire is not necessary.*

- Provide an open area plaza, but redesign the paving to have more fluid patterns and planters, to contain event lighting, and to contain some trees or other vertical elements to reinforce the perimeter.
- Paving design throughout the transit center shall be simple and elegant, with more natural curvilinear patterns that reflect the softness of the canopies, and the enhanced architecture of the buildings.
- Keep seating and planters along the perimeter of the plazas, walkways, and major gateway entrances so as not to impede passage of large amount quantities of patrons using the facility.
- The hardscape design shall assist with way finding and delineation of outdoor rooms and public spaces. Final patterns and configuration will be further developed in the next phase.

5.6 Hardscape Materials

- The majority of hardscape materials shall be colored and textured concrete (Figure - 5.17).
- Use scoring and finishing techniques (Figure - 5.18) to create interest and provide character to the public spaces.
- Use decomposed granite (Figure - 5.19) in more casual seating areas and under bike racks that are out of the way of heavily used pedestrian circulation paths.
- Any use of porous pavers (Figure - 5.20) must be limited to landscape areas that are outside of the primary pedestrian passage ways. The use of these pavers will be limited to the edge of walkways and as borders to planting areas, tree planting, and aesthetic treatments.
- Minimize paving joint widths where possible by saw cutting instead of tooling joints. (Figures - 5.21 & 5.22).

Figure 5.19 *Stabilized decomposed granite.*

Figure 5.20 *Porous pavers.*

Figure 5.17 *Colored concrete bands.*

Figure 5.21 *Saw-cut Concrete Joint*

Figure 5.18 A*cid etched concrete texture.*

Figure 5.22 *Tooled Concrete Joint - not appropriate.*

5.7 Landscape Design

- Street and parking lot tree placement along the frontage and within the parking lot shall be in accordance with City standards. In order to provide for better visibility, actual spacing and setback of street trees may vary from City standards based on City approval of final design. The intent is to provide visually wide pockets between trees to increase visibility from the street.
- Use California Coastal Sage plant palette (Figures - 5.23 & 5.24). This palette will create shrub beds that are low and dense allowing for safe clear views through the landscape and minimized water and maintenance. The shrub beds (Figure - 5.25) will be used to accent planters, walkways, and edges of the plazas.
- Use a variety of wet meadow seed mixes (Figure - 5.26) within the drainage basins around the site. These mixes shall consist of native plants that can handle dry periods and be periodically inundated with stormwater. Many of the species will provide color accent (Figure - 5.27) at the project entrance and along Crenshaw.
- Use a dry meadow grass mix (Figure - 5.28) will be used everywhere else on site to reduce the water use and maintenance of the site. Use native grasses that grow naturally in the region (Figure - 5.29) to create a grass blend that is low growing and attractive.
- Include pots for ornamental plants in a few key locations within the planter in the plaza. If pots are located outside of planters, position them on permanent bases and provide them with permanent irrigation and direct drainage. (Figure 5.30).

Figure 5.26 *Wet meadow character.*

Figure 5.23 *Coastal Sage zone.*

Figure 5.27 *Wet meadow color accent.*

Figure 5.24 *Coastal Sage zone.*

Figure 5.28 *Dry meadow grass mix.*

Figure 5.25 *Prostrate Ceanothus forms an edge.*

Figure 5.29 *Low maintenance dry meadow grass mix.*

Figure 5.30 *Desired pot forms, Cascade by Quick Crete.*

5.8 Plant Material

- Use tall shade trees along roadways, within the parking lot around the perimeter of the bus island. The species of shade trees being considered include California Sycamore (Figure - 5.31), Southern Magnolia, California Bay Laurel, and Coast Live Oak (Figure 5.32).
- Use ornamental trees smaller in scale to accentuate walkways, patios, plaza edges, and the foreground of the building. The species of ornamental trees being considered include: thornless Blue Palo Verde (Figure - 5.33), Western Redbud (Figure - 5.34), Golden Raintree, and Desert Willow.
- Fill planting beds with native shrubs and groundcovers. Some shrubs to considered include: the prostrate form of Coyote Brush (Figure - 5.35), California Brittlebush (Figure -5.36), Maritime Ceanothus (Figure - 5.37), California Buckwheat, and small California native Sage varieties.

Figure 5.31 *California Sycamore.*

Figure 5.32 *Coast Live Oak*

Figure 5.33 *Blue Palo Verde (thornless variety).*

Figure 5.34 *Western Redbud in bloom.*

Figure 5.35 *Coyote Brush, prostrate form.*

Figure 5.36 *California Brittlebush*

Figure 5.37 *Maritime Ceanothus.*

- Use dry meadow planting mixes (Figure - 5.38) to cover the remaining grounds and provide a soft look throughout (Figure - 5.39). The planting mix shall consist entirely of low growing grass species including Nodding Needlegrass, Purple Needlegrass, Junegrass, and Molate Fescue.
- Use wet meadow planting mixes to fill drainage basins consisting of grasses and perennials. Some of the plants to consider include: Purple Three-Awn, Occidental Blue Wire Grass (Figure - 5.40), and Golden-Eyed Grass (Figure - 5.41).
- Fill planers and pots in the plaza and near the buildings with colorful low water use plants. Some plants to consider include: Dudleya species (Figure - 5.42), Island Snapdragon, California Fuschia (Figure - 5.43), Catalina Lace (Figure - 5.44), Sea Dahlia,and Pine Muhly.
- Create low accent plantings along the drainage basin within the island in the driveway entry. Plants to consider include showy hardy species like Shaw's Agave (Figure - 5.45) and California Brittlebush.

Figure 5.38 *Purple Needlegrass.*

Figure 5.39 *Dry meadow native preservation mix.*

Figure 5.40 *Occidental Blue Wire Grass*

Figure 5.41 *Golden-Eyed Grass.*

Figure 5.42 *Brittons Dudleya.*

Figure 5.43 *California Fuschia.*

Figure 5.44 *Catalina Lace.*

Figure 5.45 *Shaw's Agave.*

5.9 Stormwater Treatment

- Provide efficient irrigation to minimize water use and manage stormwater on-site.
- Design drainage basins to capture and showcase storm events.
- Choose vegetation that takes advantage of stormwater and requires minimal irrigation and maintenance.
- Design the irrigation system to connect to the future reclaimed water line that runs down Crenshaw Boulevard.
- Choose irrigation components compatible with reclaimed non-potable water.

5.10 Public Art

The initial recommendation for palms in the transit island has been revised to replace the trees with a combination of lower level greenery and vertical light and signage forms to punctuate the design. These elements can be used to provide numerous functional public art pieces on the transit island. A combination of education, lighting, mosaic storytelling, vegetation, and vertical elements may be used to create dramatic art pieces. (See Public Art chapter of this report for further detail). (Figure - 5.46.

5.11 Site Amenities

- Provide a lighted monument sign at the Project entry combining the architectural language of the site and buildings.
- Allow infrastructure for installation of future Ticket Vending Machines.
- Provide amenity space for Operator's Patio including furnishings. Future commercial tenant furnishings to be provided by and to match the language of the transit center furnishings.
- Allow installation locations for festival banners (Figure - 5.47) and additional wayfinding devices.
- Provide signage for LEED education (Figure - 5.48), wayfinding and bus scheduling.

Figure 5.46 *Grand Park sign integrating wayfinding and art*

Figure 5.47 *Special event banners on light poles.*

Figure 5.48 *An example of LEED educational signage.*

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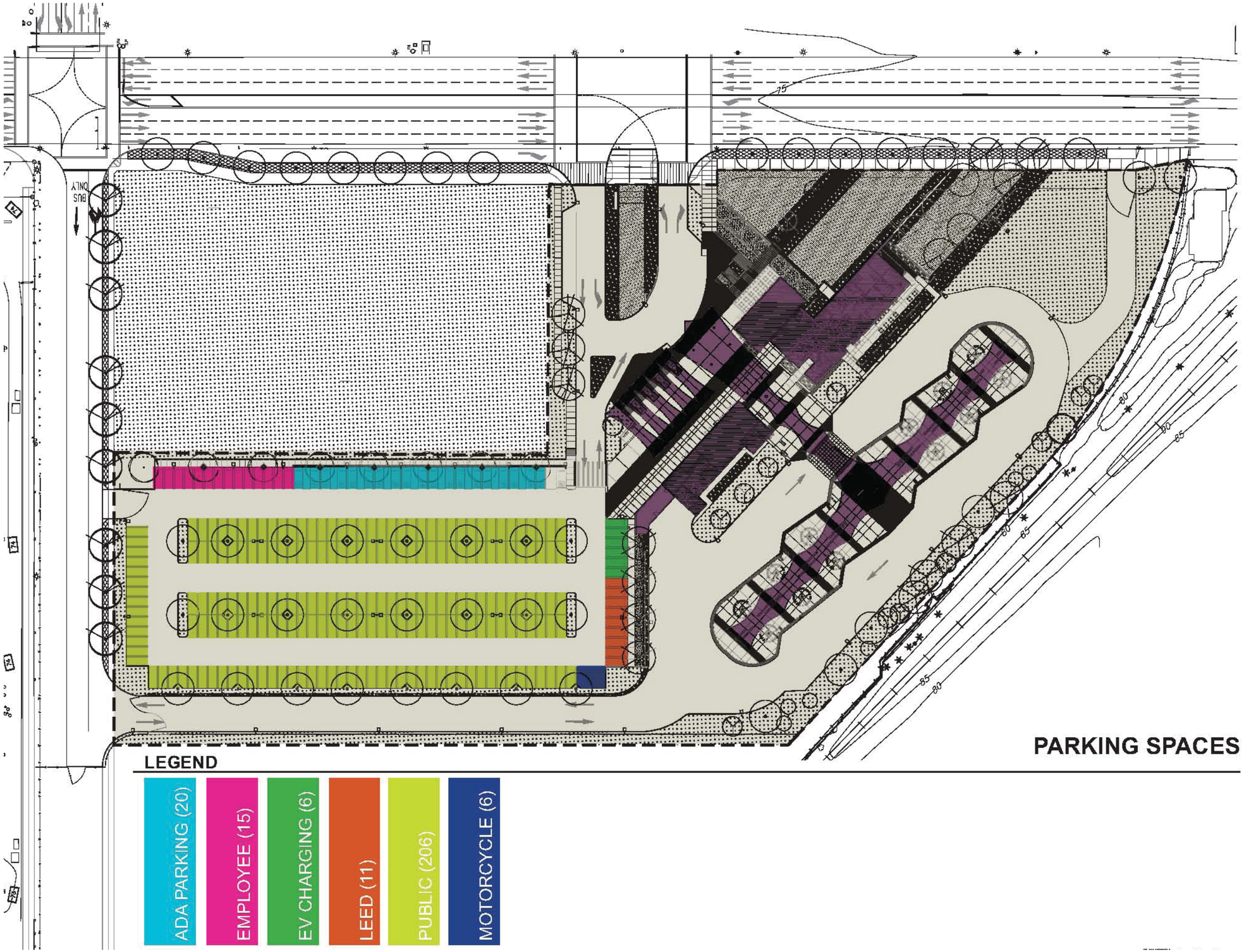
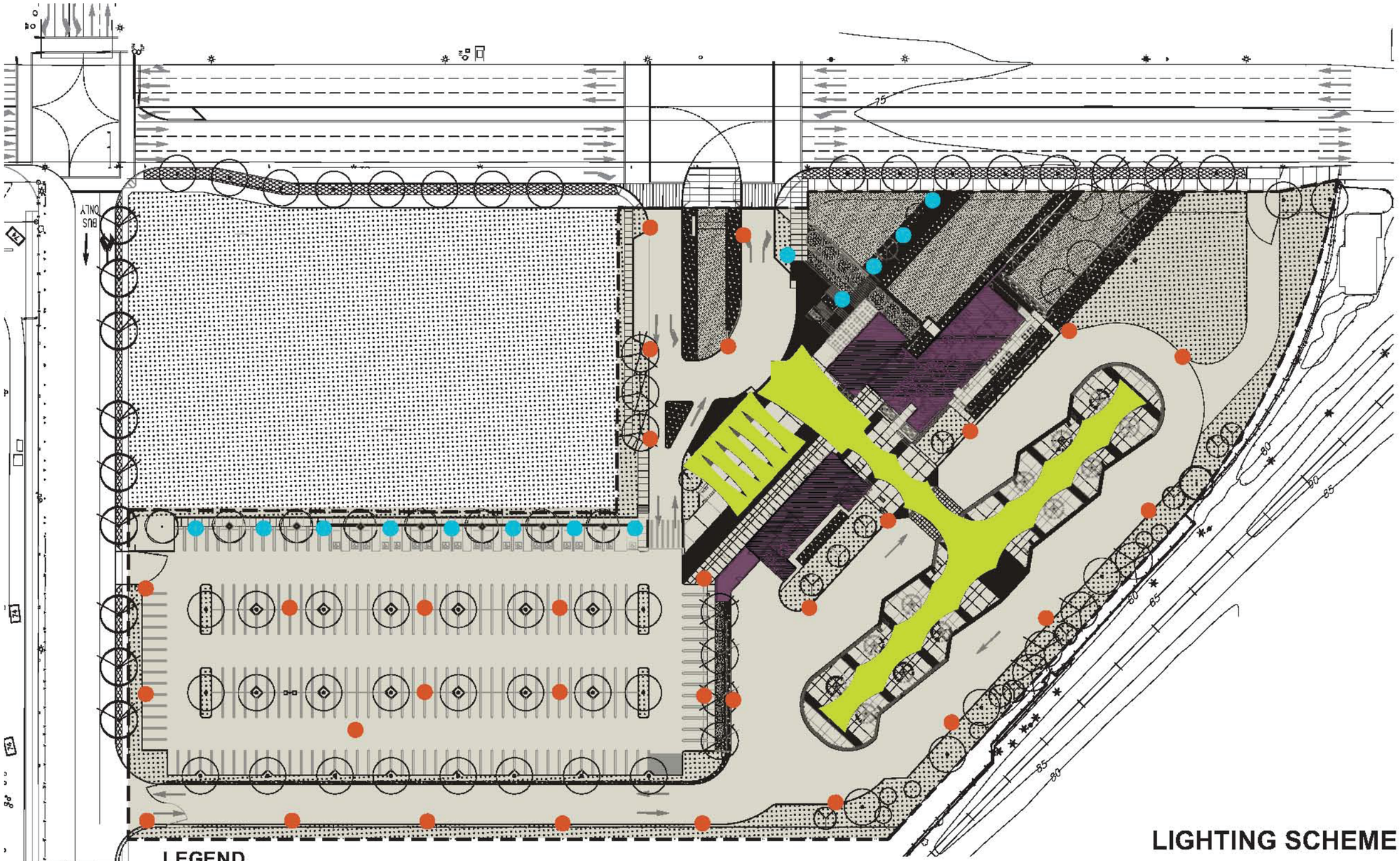

BUS ONLY
LEGEND
ADA PARKING (20)
EMPLOYEE (15)
EV CHARGING (6)
LEED (11)
PUBLIC (206)
MOTORCYCLE (6)
PARKING SPACES



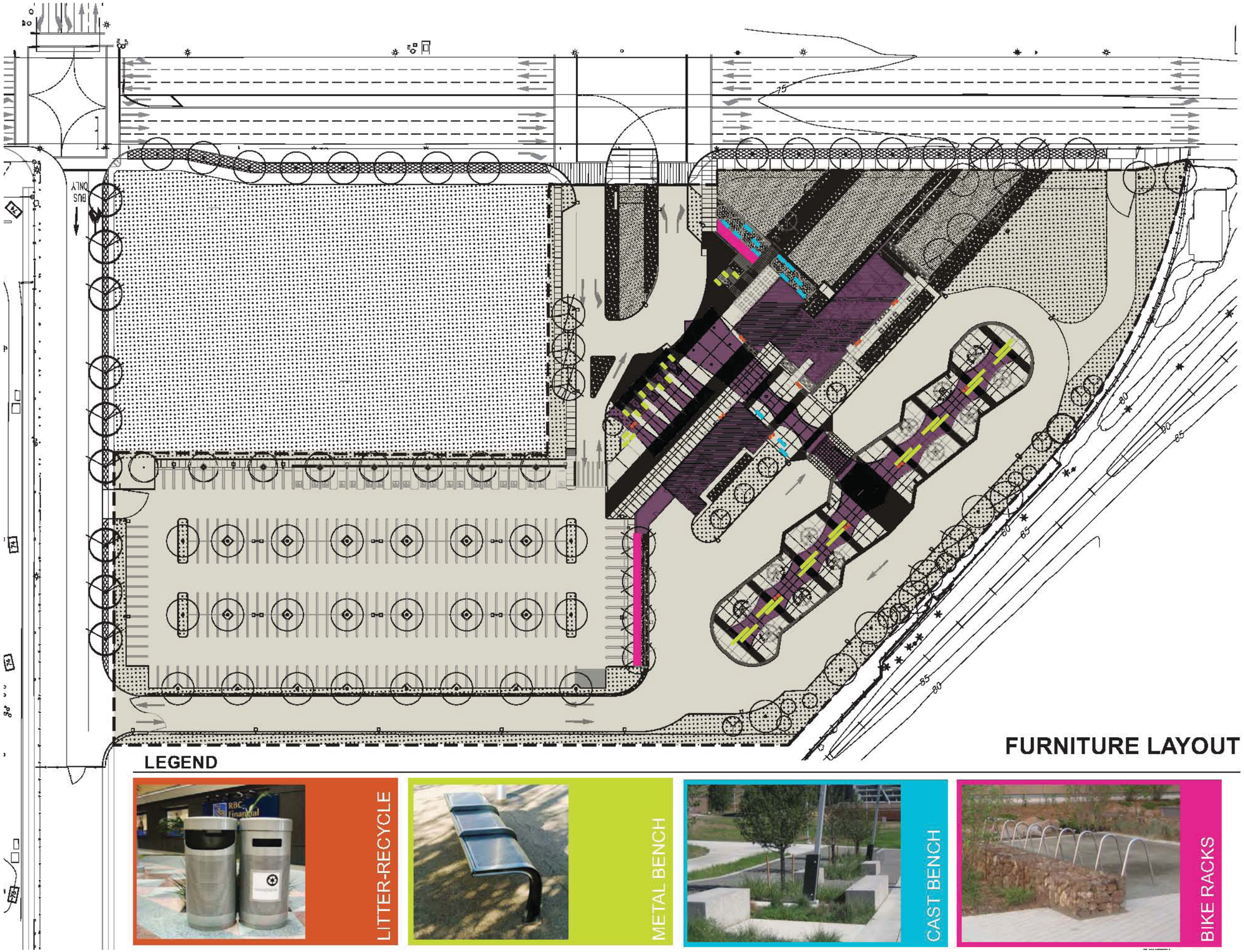
LIGHTING SCHEME

LEGEND

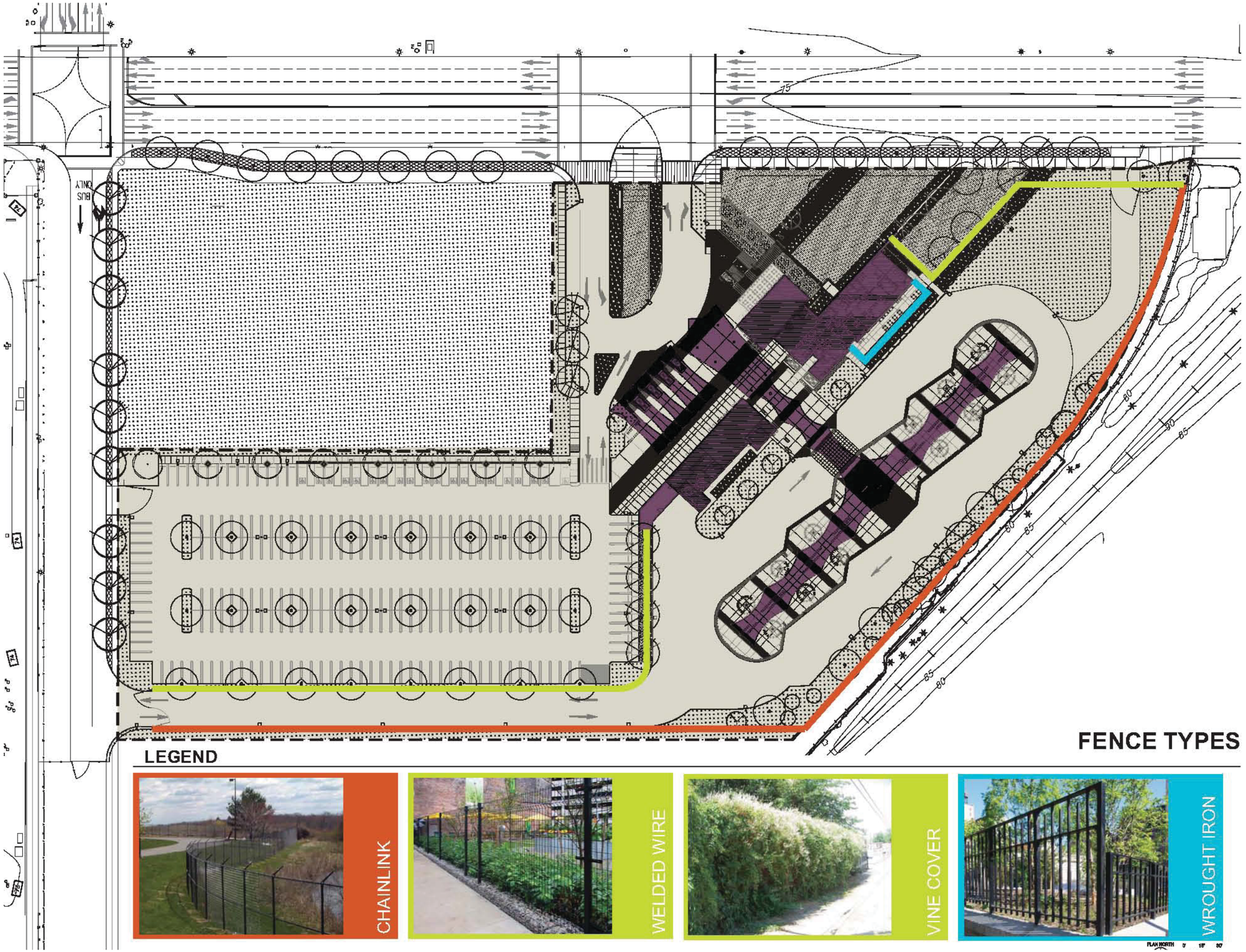
27' STREET

CANOPY LIGHTS

15' PEDESTRIAN



FURNITURE LAYOUT



FENCE TYPES

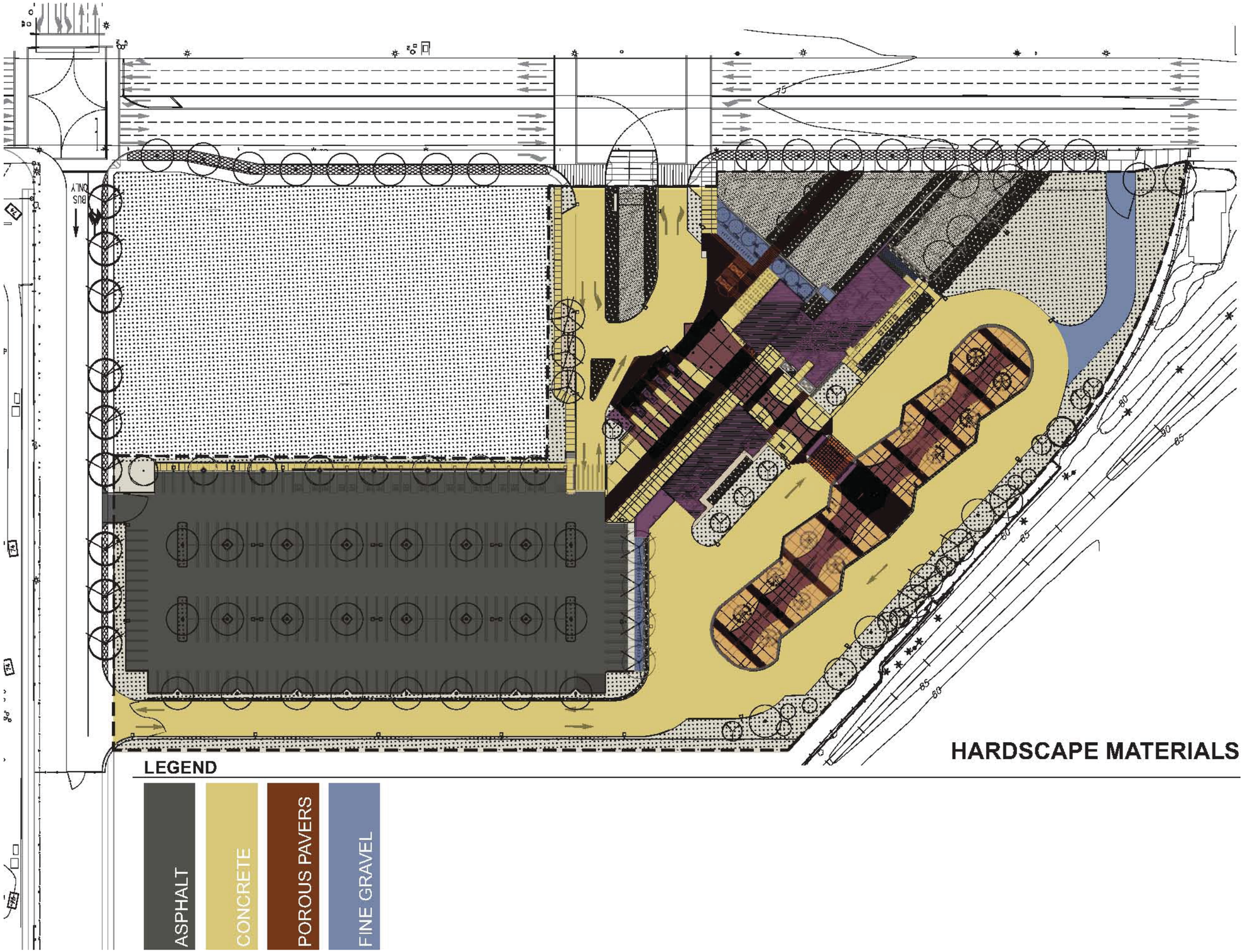
LEGEND

CHAINLINK

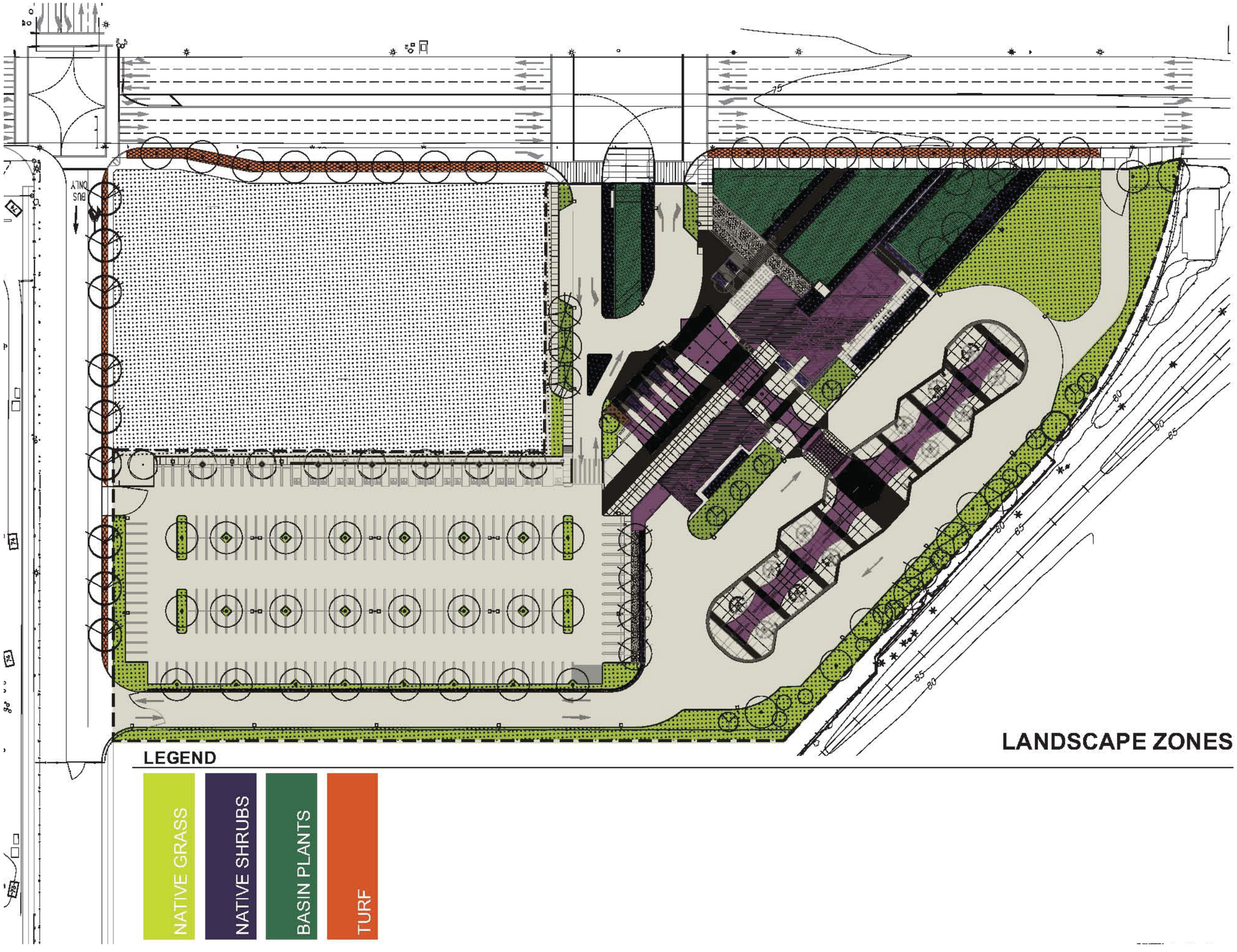
WELDED WIRE

VINE COVER

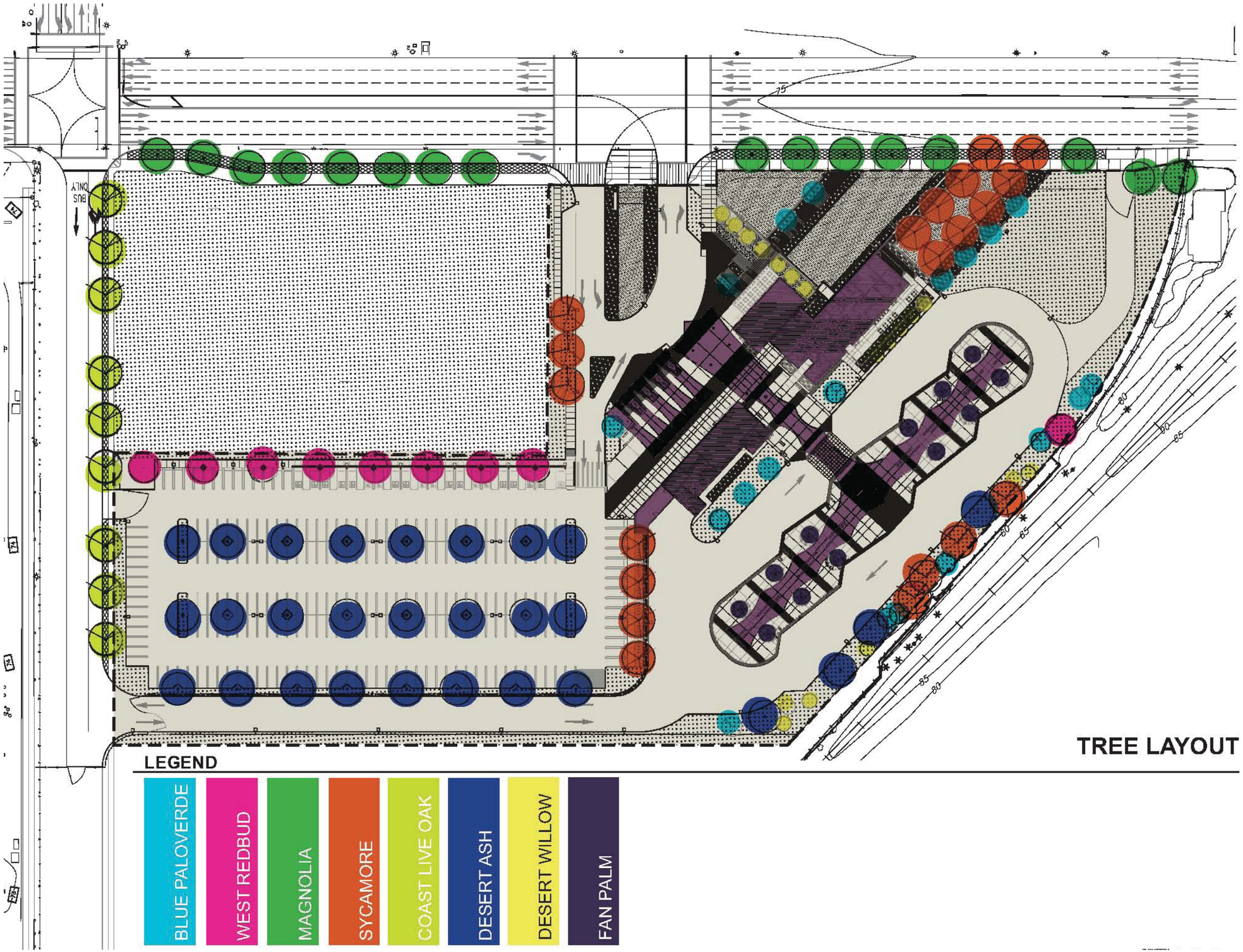
WROUGHT IRON



HARDSCAPE MATERIALS



LANDSCAPE ZONES


BUS ONLY
LEGEND
BLUE PALOVERDE
WEST REDBUD
MAGNOLIA
SYCAMORE
COAST LIVE OAK
DESERT ASH
DESERT WILLOW
FAN PALM

TREE LAYOUT

SITE ILLUSTRATIVE

6.0 SUSTAINABILITY

6.0 Sustainability

Background

Sustainability is an important component of great design, and is fundamental to the success of the Torrance Transit Center. The City has made it a priority to rigorously pursue LEED certification and include sustainable design features. In February 2012, the design team and the City performed a thorough 'Visioning Session' for the project which included a specific 'Eco-Charrette' where sustainability was the central focus. This charrette combined with staff questionnaires helped to form the sustainability goals of the project found in the Master Plan Report.

The Master Plan identified many ambitious goals for the project including LEED-Platinum and a net-zero energy facility so long as these could be achieved within the budget. Through extensive design, engineering coordination, and cost estimating, the design team and the City have agreed that a net-zero energy facility and LEED-Platinum, while desired, are beyond the initial budget of this project. The future design team should seek to maximize design and construction solutions to achieve as many LEED and Design for One Earth points as possible within the project budget. The 30% Design LEED scorecard can be found on the following pages. It identified 30% design solutions and credits that will require Contractor and Owner action.

Many of the original Master Plan sustainable goals are inherent in the 30% design documents and are within the Project's current budget. These include:

- Achieve a LEED-NC v2009 Gold Certificate (required); LEED-Platinum (desired),
- Meet RNL's Design for One Earth principals (a Zero-Energy goal was identified by the city as the highest priority),
- Use landscaping and outdoor spaces to promote health,
- Provide pedestrian safety,
- Provide educational signage,
- Create an experiential space,
- Create an oasis,
- Provide a sense of visual openness,
- Provide stormwater management on-site,
- Create habitat for wildlife on-site,
- Minimize use of air conditioning.

Design for One Earth (D41E) is organized around 12 values encompassing the triple bottom line, environmental, economic and social priorities. Its flexible open framework allows for the incorporation of commonly used sustainability rating systems like the USGBC's LEED (Leadership in Energy and Environmental Design) Rating System and for California projects, CalGreen Code. Both of these systems set minimum thresholds for site selection, energy reduction, indoor and outdoor water use, indoor environmental quality, recycling, uses of certain types of materials, and the metering and measuring of water and energy use during operations.

Intent

- Sustainability goals shall be reviewed and pursued in a holistic manner, giving preference to the goals identified at the outset of the project.
- Changes to goals shall be determined by analysis of the triple bottom line; environmental, economic and social priorities.
- LEED-Gold certification is required; LEED-Platinum certification and a Zero-Energy building are desired.
- To achieve the desired LEED-Gold or LEED-Platinum certification will require a combination of design, construction, and owner dedication to the LEED scorecard requirements. While the design team should seek to maximize the number of LEED points within the project budget, the ultimate LEED certification level will be effected by the LEED points within the control of the contractor and owner. A coordinated team effort throughout the project is fundamental to achieve a highly sustainable LEED project.

Required

Desired

LEED for New Construction and Major Renovation 2009
Project: Torrance Transit Park and Ride Regional Terminal
Last Updated: 9/14/2012
Goal: Gold

Yes	Strong ?	Weak ?	No	N/A
68	11	11	16	4

Current Yes's = Gold Rating

Project Totals (pre-certification estimates) — 110 Points Possible

Certified 40-49 **Silver** 50-59 points **Gold** 60-79 points **Platinum** 80-110 points

d = Design Submittal C = Construction Submittal

		Project Information (PI) - required		Notes	Cost
Y	PI form 1	**Minimum Project Requirements** (P) ■ Verify that the project meets all of the LEED for New Construction Minimum Program Requirements.	N/A		-
Y	PI form 2	**Project Summary Details** (P) ■ Provide building area and gross sf information, energy and water source information, project budget and cost information, and historic project information.	N/A		-
Y	PI form 3	**Occupant and Usage Data** (P) ■ Provide building space usage and occupancy information.	N/A		-
Y	PI form 4	**Schedule and Overview Documents** (P) ■ Provide project schedule information and upload representative project photos and drawings.	N/A		-

21	2		3	

Sustainable Sites (SS) - 26 Points Available

		Sustainable Sites (SS) - 26 Points Available		Notes	Cost
Y	SSp1	**Construction Activity Pollution Prevention** (P) ■ Create and implement an Erosion and Sedimentation Control Plan for all construction activities associated with the project. The ESC Plan shall conform to the erosion and sedimentation requirements of the 2003 EPA Construction General Permit OR local erosion and sedimentation control standards and codes, whichever is more stringent.	C	Include erosion and sedimentation control measures on drawing and in specifications. Consider BioFence, Straw Bale or alternatives, Jute Mesh and other biobased products.	-
1	SSc1	**Site Selection** (1) ■ Do not develop buildings, hardscape, roads or parking areas on portions of sites that meet any one of the following criteria: 1) Prime farmland 2)Previously undeveloped land lower than 5 feet above the 100-year flood 3) Land that is specifically identified as habitat for threatened or endangered species 4) Within 100 feet of any wetlands OR within setback distances prescribed in state or local regulations 5) Previously undeveloped land that is within 50 feet of a water body 6) Land which prior to acquisition for the project was public parkland.	d	Site is not on any of the prohibited areas.	-
5	SSc2	**Development Density & Community Connectivity** (5) ■ OPTION 1: Development Density: Construct or renovate a building on a previously developed site AND in a community with a minimum density of 60,000 sq ft per acre net. OR ■ OPTION 2: Community Connectivity: Construct or renovate a building on a previously developed site AND within 1/2 mile of a residential zone or neighborhood with an average density of 10 units per acre net AND within ½ mile of at least 10 Basic Services AND with pedestrian access between the building and the services.	d	10 basic services are located within 1/2 mile radius. Multiple townhomes and an apartment building also within 1/2 mile radius.	-
1	SSc3	**Brownfield Redevelopment** (1) ■ OPTION 1: Develop on a site documented as contaminated (by means of an ASTM E1903-97 Phase II Environmental Site Assessment or a local Voluntary Cleanup Program) OR ■ OPTION 2: Develop on a site defined as a brownfield by a local, state or federal government agency. For projects where asbestos is found and remediated also earn this credit. Testing should be done in accordance with EPA Reg 40CFR part 763 when applicable.	d	Phase II ESA not conducted onsite.	-

Yes	Strong ?	Weak ?	No	N/A					
6					SSc4.1	**Alternative Transportation,** Public Transportation Access (6) ■ OPTION 1: Rail Station Proximity: Locate project within 1/2 mile walking distance of an existing, or planned and funded, commuter rail, light rail or subway station OR ■ OPTION 2: Bus Stop Proximity: Locate project within 1/4 mile walking distance of one or more stops for two or more public or campus bus lines usable by building occupants (measured from a main building entrance).	d	Multiple buses will serve the site.	-
1					SSc4.2	**Alternative Transportation,** Bicycle Storage & Changing Rooms (1) ■ CASE 1. Commercial or Institutional Projects: Provide secure bicycle racks and/or storage (within 200 yards of a building entrance) for 5% or more of all building users (measured at peak periods), AND provide shower and changing facilities in the building, or within 200 yards of a building entrance, for 0.5% of Full-Time Equivalent (FTE) occupants. ■ CASE 2 Residential Projects: Provide covered storage facilities for securing bicycles for 15% or more of building occupants.	d	Bike racks and showers will be provided within 200 yards from building entrance.	Hard Cost: Bike racks and showers.
3					SSc4.3	**Alternative Transportation,** Low-Emitting and Fuel-Efficient Vehicles (3) ■ OPTION 1: Provide preferred parking for low-emitting and fuel-efficient vehicles for 5% of the total vehicle parking capacity of the site. In order to establish a meaningful incentive in all potential markets, the parking rate must be discounted at least 20%. This approach is acceptable as long as the discounted rate is available for all customers (not limited to the number of customers equal to 5% of the vehicle parking capacity), publicly posted at the entrance to the parking area and available for a minimum of two years. OR ■ OPTION 2: Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site (liquid or gaseous fueling facilities must be separately ventilated or located outdoors). OR ■ OPTION 3: Provide low-emitting and fuel-efficient vehicles for 3% of Full-Time Equivalent (FTE) occupants AND provide preferred parking for these vehicles. OR ■ OPTION 4: Provide building occupants access to a low emitting/fuel efficient vehicle sharing program. Preferred parking refers to the parking spots that are closest to the main entrance or parking passes provided at a discounted rate. The parking rate must be discounted at least 20% and available to all eligible customers, publicly posted at entrance and available for a minimum of 2 years.	d	Preferred parking for low-emitting/fuel-efficient vehicles will be provided.	Hard Cost: Signage.
	2				SSc4.4	**Alternative Transportation,** Parking Capacity (2) ■ OPTION 1: Size parking capacity to meet, but not exceed, minimum local zoning requirements, AND, provide preferred parking for carpools or vanpools for 5% of the total provided parking spaces. OR ■ OPTION 2: For projects that provide parking for less than 5% of FTE building occupants: Provide preferred parking for carpools or vanpools, marked as such, for 5% of total provided parking spaces. ■ OPTION 3: Provide no new parking. ■ OPTION 4: For projects that have no minimum local zoning requirements, provide 25% fewer parking spaces than the applicable standard listed in the 2003 Institute of Transportation Engineers (ITE) "Parking Generation Study". Preferred parking refers to the parking spots that are closest to the main entrance or parking passes provided at a discounted rate. The parking rate must be discounted at least 20% and available to all eligible customers, publicly posted at entrance and available for a minimum of 2 years.	d	Parking capacity needs to be verified with 2003 ITE Parking Generation Study.	-
			1		SSc5.1	**Site Development**, Protect or Restore Habitat (1) ■ CASE 1. Greenfield Sites: Limit all site disturbance to 40 feet beyond the building perimeter and parking garages; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) ■ CASE 2. Previously Developed Areas or Graded Sites: Restore or protect a minimum of 50% of the site area (excluding the building footprint) or 20% of the total site area (including building footprint), whichever is greater, with native or adapted vegetation. Native/adapted plants are plants indigenous to a locality or cultivars of native plants that are adapted to the local climate and are not considered invasive species or noxious weeds. Projects earning SSc2 may include the vegetated roof surface in this calculation if the plants are native or adapted, provide habitat and promote biodiversity.	c	Not enough landscaping area available to meet credit requirements.	-

Yes	Strong ?	Weak ?	No	N/A					
1					SSc5.2	**Site Development,** Maximize Open Space (1) ■ CASE 1. Sites with Local Zoning Open Space Requirements: Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning's open space requirement for the site by 25%. OR ■ CASE 2. Sites with No Local Zoning Requirements: Provide vegetated open space area adjacent to the building that is equal to the building footprint. OR ■ CASE 3. Site with Zoning Ordinances but No Open Space Requirements: Provide vegetated open space equal to 20% of the project's site area. ■ ALL CASES: -Urban projects that earn SSc2 - vegetated roof areas can contribute to credit compliance. -Urban projects that earn SSc2 - pedestrian oriented hardscape areas can contribute to credit compliance. For such projects, a minimum of 25% of the open space counted must be vegetated. -Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.	d	Vegetated open space more than building footprint will be provided.	-
1					SSc6.1	**Stormwater Design,** Quantity Control (1) ■ CASE 1. Sites with Existing Imperviousness 50% or Less: - OPTION 1: Implement a stormwater management plan that prevents the post-development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one- and two-year 24-hour design storms. OR - OPTION 2: Implement a stormwater management plan that protects receiving stream channels from excessive erosion by implementing a stream channel protection strategy and quantity control strategies. OR ■ CASE 2. Sites with Existing Imperviousness Greater than 50%: Implement a stormwater management plan that results in a 25% decrease in the volume of stormwater runoff from the two-year 24-hour design storm.	d	Determine existing/future design imperviousness. Design with detention and retention basins to reduce runoff.	Hard Cost: Stormwater detention system.
1					SSc6.2	**Stormwater Design,** Quality Control (1) ■ Implement a stormwater management plan that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from 90% of the average annual rainfall using acceptable best management practices (BMPs). BMPs used to treat runoff must be capable of removing 80% of the average annual post development total suspended solids (TSS) load based on existing monitoring reports. BMPs are considered to meet these criteria if: (1) they are designed in accordance with standards and specifications from a state or local program that has adopted these performance standards, OR (2) there exists in-field performance monitoring data demonstrating compliance with the criteria. Data must conform to accepted protocol (e.g., Technology Acceptance Reciprocity Partnership [TARP], Washington State Department of Ecology) for BMP monitoring.	d	Determine which methods will be used to treat stormwater and whether project will meet treatment requirements.	Hard Cost: Stormwater quality system.
1					SSc7.1	**Heat Island Effect,** Non-Roof (1) ■ OPTION 1: Provide any combination of the following strategies for 50% of the site hardscape (including roads, sidewalks, courtyards and parking lots): • Provide shade from existing tree canopy or within five years of landscape installation; landscaping (trees) must be in place at the time of occupancy. • Provide shade from structures covered by solar panels that produce energy used to offset some non-renewable resource use. • Provide shade from architectural devices or structures that have a SRI of at least 29. • Use hardscape paving materials with an SRI of at least 29. • Use an open-grid pavement system (at least 50% pervious). OR ■ OPTION 2: Place a minimum of 50% of parking spaces under cover (defined as under ground, under deck, under roof, or under a building). Any roof used to shade or cover parking must have an SRI of at least 29, be a vegetated green roof, or be covered by solar panels that produce energy used to offset some non-renewable resource use.	c	Specify 50% of hardscape with an SRI of 29, be shaded or open grid.	-
1					SSc7.2	**Heat Island Effect,** Roof (1) ■ OPTION 1: Use roofing materials having a Solar Reflectance Index (SRI) equal to or greater than the values listed for a minimum of 75% of the roof surface. Low-sloped (<=2:12 or 15%) roof >=78, Steep sloped (>2:12 or 15%) roof >29 Roofing materials having a lower SRI value than those listed below may be used if the weighted rooftop SRI average meets the following criteria: (Area SRI roof/Total roof area) * (SRI of installed roof/Required SRI) ≥75% OR {(Area of Roof A*SRI of Roof A/Required SRI) + (Area of Roof B*SRI of Roof B/Required SRI) + ...}/0.75 >= Total Roof Area ■ OPTION 2: Install a vegetated roof for at least 50% of the roof area. ■ OPTION 3: Install high albedo and vegetated roof surfaces that, in combination, meet the following criteria: (Area of SRI Roof / 0.75) + (Area of vegetated roof / 0.5) >= Total Roof Area OR {(Area of Roof A*SRI of Roof A/Required SRI) + (Area of Roof B*SRI of Roof B/Required SRI) + ...}/0.75 + {Area of vegetated roof/0.5} >= Total Roof Area	d	Specify low-sloped roof with an SRI of 78 or greater and steep-sloped roof of 29 or greater.	-

Yes	Strong ?	Weak ?	No	N/A					
			1		SSc8	**Light Pollution Reduction** (1) For Interior Lighting: ■ OPTION 1: All non-emergency interior luminaires , with a direct line of sight to any openings in the envelope (translucent or transparent), shall have its input power reduced (by automatic device) by at least 50% between the hours of 11 PM and 5 AM. After hours override may be provided by a manual or occupant sensing device provided that the override last no more than 30 minutes. OR ■ OPTION 2: All openings in the envelope (translucent or transparent) with a direct line of sight to any non-emergency luminaires shall have shielding (for a resultant transmittance of less than 10%) that will be controlled/closed by automatic device between the hours of 11 PM and 5 AM. For Exterior Lighting: ■ Only light areas as required for safety and comfort. Lighting Power Densities shall not exceed ANSI/ASHRAE/IESNA Standard 90.1-2007 (with addenda 1) for the classified zone. Lighting controls must comply with section 9.4.1.3 of the ANSI/ASHRAE/IESNA Standard 90.1-2007 (without amendments). For LZ2, LZ3 & LZ4 - For site boundaries that abut public rights-of-way, light trespass requirements may be met relative to the curb line instead of the LEED project boundary. ■ For ALL Zones - Illuminance generated from a single luminaire placed at the intersection of a vehicular driveway and public roadway accessing the site, is allowed to use the centerline of the public roadway as the LEED project boundary for a length of 2 times the driveway width centered at the centerline of the driveway.	d	Light trespass occurs along the LEED boundary due to site constraints.	-

5		1	4			**Water Efficiency (WE)** - 10 Points Available		Notes	
Y					WEp1	**Water Use Reduction,** 20% (P) ■ Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 and 2005 fixture performance requirements and the 2006 Uniform Plumbing Code or International Plumbing Code. Calculations are based on estimated occupant usage and shall include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sinks and pre-rinse spray valves.	d	Select low flow fixtures. Perform calculations for plumbing fixtures to determine credit compliance. Dual flush tank, faucet aerators/restrictors, 0.125 gallon per flush urinal, 0.5 gpm automatic lavatories are being considered.	Hard Cost: Low flow and flush fixtures.
2			2		WEc1	**Water Efficient Landscaping** (4) ■ OPTION 1: Reduce by 50% (2 pts): Reduce potable water consumption for irrigation by 50% from a calculated mid-summer baseline case. Reductions shall be attributed to any combination of the following: • Plant species density and microclimate factor • Irrigation efficiency • Use of captured rainwater • Use of recycled wastewater • Use of water treated and conveyed by a public agency specifically for non-potable uses • Use of groundwater seepage ■ OPTION 2: No Potable Water Use or Irrigation (4 pts): Meet the requirements for Option 1 AND - PATH 1: Use only captured rainwater, recycled wastewater, recycled greywater, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation. OR - PATH 2: Install landscaping that does not require permanent irrigation systems. Temporary irrigation systems used for plant establishment are allowed only if removed within a period not to exceed 18 months of installation.	d	Design with low water consuming vegetation. Select irrigation equipment featuring drip emitters and other efficient irrigation technologies. Potable water will be used for irrigation.	Hard Cost: High efficiency landscaping - shrubs, moisture sensor, drip system.
			2		WEc2	**Innovative Wastewater Technologies** (2) ■ OPTION 1: Reduce potable water use for building sewage conveyance by 50% through the use of water conserving fixtures or non-potable water. OR ■ OPTION 2: Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.	d	Potable water usage reduction will not meet credit standards without treating wastewater on-site..	
3		1			WEc3	**Water Use Reduction** (2-4) ■ 30% - 2 points; 35% - 3 points; 40% - 4 points ■ Employ strategies that in aggregate use 30 to 40% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 and 2005 fixture performance requirements and the 2006 Uniform Plumbing Code or International Plumbing Code. Calculations are based on estimated occupant usage and shall include only the following fixtures and fixture fittings (as applicable to the building): water closets, urinals, lavatory faucets, showers, kitchen sinks and pre-rinse spray valves.	d	Select low flow fixtures. Perform calculations for plumbing fixtures to determine credit compliance. Dual flush tank, faucet aerators/restrictors, 0.125 gallon per flush urinal, 0.5 gpm automatic lavatories are being considered.	Hard Cost: Low flow and flush fixtures.

18	5	5	7			**Energy & Atmosphere (EA)** - 35 Points Available		Notes	Cost
Y					EAp1	**Fundamental Commissioning of the Building Energy Systems** (P) ■ Commissioning process activities shall be completed by the commissioning team, in accordance with the LEED-NC 2009 Rating system requirements. Commissioning process activities shall be completed for the following energy-related systems, at a minimum: • Heating, ventilating, air conditioning, and refrigeration (HVAC&R) systems (mechanical and passive) and associated controls • Lighting and daylighting controls • Domestic hot water systems • Renewable energy systems (wind, solar etc.)	c	Hire a commissioning agent, create commissioning plan, OPR and BOD.	Soft cost: Commissioning Agent.

Yes	Strong ?	Weak ?	No	N/A					
Y					EAp2	**Minimum Energy Performance** (P) ■ OPTION 1: Whole Building Simulation: Demonstrate a 10% improvement for new buildings or a 5% improvement for existing building renovations in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard. The project must be designed to comply with the mandatory provisions (Sections 5.4, 6.4, 7.4, 8.4, 9.4 and 10.4) of the Standard.	d	Verify that building will meet set requirements.	Soft cost: Energy modeling.
Y					EAp3	**Fundamental Refrigerant Management** (P) ■ Zero use of CFC-based refrigerants in new base building HVAC&R systems. When reusing existing base building HVAC equipment, complete a comprehensive CFC phase-out conversion prior to project completion. Phase-out plans extending beyond the project completion date will be considered on their merits. Existing small HVAC units and other equipment such as standard refrigerators, small water coolers and any other equipment that contains <0.5lbs of refrigerant are not considered part of the base building system and are not subject to the requirements of this prerequisite.	d	Verify that mechanical equipment will not use CFC's in HVAC&R systems.	-
7	3	2	7		EAc1	**Optimize Energy Performance** (19) NEW BUILDING Points: 12%- 1; 14%- 2; 16%- 3; 18%- 4; 20%- 5; 22%- 6; 24%- 7; 26%- 8; 28%- 9; 30%- 10, 32%- 11, 34%- 12, 36%- 13, 38%- 14, 40%- 15, 42%- 16, 44%- 17, 46%- 18, 48%- 19 EXISTING BUILDING Points: 8%- 1; 10%- 2; 12%- 3; 14%- 4; 16%- 5; 18%- 6; 20%- 7; 22%- 8; 24%- 9; 26%- 10, 28%- 11, 30%- 12, 32%- 13, 34%- 14, 36%- 15, 38%- 16, 40%- 17, 42%- 18, 44%- 19 ■ OPTION 1: Whole Building Energy Simulation (1–19 Points): Demonstrate a percentage improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda) by a whole building project simulation using the Building Performance Rating Method in Appendix G of the Standard.	d	Determine energy efficiency measures to achieve net-zero energy.	Hard cost: HVAC equipment, distribution, control points, lighting fixtures and controls. Soft cost: Energy modeling.
2	2	3			EAc2	**On-Site Renewable Energy** (7) 1%-1; 3%-2; 5%-3; 7%-4; 9%-5; 11%-6; 13%-7 ■ Use on-site renewable energy systems to offset building energy cost. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building annual energy cost and using the table below to determine the number of points achieved. Use the building annual energy cost calculated in EA Credit 1 or use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use. (Table of use for different building types is provided in the Reference Guide.)	d	PVs for RTU solar assist will be provided.	Hard cost: PV's
2					EAc3	**Enhanced Commissioning** (2) ■ Implement, or have a contract in place to implement, additional commissioning process activities in addition to the requirements of EA Prerequisite 1 and in accordance with the LEED-NC 2009 Rating System.	c	Hire a commissioning agent, create commissioning plan. Review CD set and provide comments.	Soft cost: Commissioning Agent.
2					EAc4	**Enhanced Refrigerant Management** (2) ■ OPTION 1: Do not use refrigerants. OR ■ OPTION 2: Select refrigerants and HVAC&R that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change. The base building HVAC&R equipment shall comply with the formula provided in the LEED-NC 2009 rating system, which sets a maximum threshold for the combined contributions to ozone depletion and global warming potential. AND Do not install or operate fire suppression systems that contain ozone-depleting substances (CFCs, HCFCs or Halons). Small HVAC units and other equipment such as standard refrigerators, small water coolers and any other equipment that contains <0.5lbs of refrigerant are not considered part of the base building system and are not subject to the requirements of this prerequisite.	d	Perform refrigerant calculations.	-
3					EAc5	**Measurement & Verification** (3) ■ OPTION 1: Develop and implement a Measurement & Verification (M&V) Plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2), OR ■ OPTION 2: Energy Conservation Measure Isolation, as specified in the International Performance Measurement & Verification Protocol (IPMVP) Volume III: Concepts and Options for Determining Energy Savings in New Construction, April, 2003. The M&V period shall cover a period of no less than one year of post-construction occupancy. Provide a process for corrective action to ensure energy savings are realized if the results of the M & V plan indicate that energy savings are not being achieved. ■ OPTION 3 (1 point): Meet MPR 6 through compliance Option 1: Energy and Water Data Release Form. Projects must register an account in ENERGY STAR's Portfolio Manager too and share the project file with the USGBC master account.	c	Add M&V to Cx scope of work. Cx to develop M&V Plan.	Hard cost: Additional meters. Soft cost: Commissioning Agent.
2					EAc6	**Green Power** (2) ■ Engage in at least a 2 year renewable energy contract to provide at least 35% of the building's electricity from renewable sources, as defined by the Center for Resource Solutions (CRS) Green-e Energy products certification requirements. ■ OPTION 1: Determine Baseline Electricity Use: Use the annual electricity consumption from the results of EAc1. ■ OPTION 2: Estimate Baseline Electricity Use: Use the US Department if Energy's Commercial Buildings Energy Consumption Survey database to determine the estimated electricity use. All purchases of green power shall be based on the quantity of energy consumed, not the cost.	c	Provide projected energy usage after energy modeling. Price green power if not going for net-zero energy.	Soft cost: Green power purchase.

Yes	Strong ?	Weak ?	No	N/A
5	2	1	2	4

Materials & Resources (MR) - 14 Points Available

								Notes	Cost
Y					MRp1	**Storage & Collection of Recyclables** (P) ■ Provide an easily accessible dedicated area or areas that serves the entire building for the collection and storage of materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics and metals.	d	Locate recycling storage and collection on drawings. Determine frequency and quantity of material to be recycled.	Hard cost: Recycling bins. Soft cost: Recycling service.
				3	MRc1.1	**Building Reuse,** Maintain Existing Walls, Floors & Roof (1-3) ■ 55% - 1; 75% - 2; 95% - 3 ■ Maintain the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.	c		
				1	MRc1.2	**Building Reuse,** Maintain Interior Non-Structural Elements (1) ■ Use existing interior non-structural elements (interior walls, doors, floor coverings and ceiling systems) in at least 50% (by area) of the completed building (including additions). If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.	c		
1	1				MRc2	**Construction Waste Management,** 50%, 75% (1-2) ■ 50% - 1; 75% - 2 ■ Recycle and/or salvage non-hazardous construction and demolition debris. Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be sorted on-site or commingled. Excavated soil and land-clearing debris do not contribute to this credit. Calculations can be done by weight or volume, but must be consistent throughout.	c	Determine construction waste likely to be created for project and find recycle sources for waste. Track construction waste log throughout construction.	Soft cost: Recycling additional construction waste.
			2		MRc3	**Materials Reuse,** 5%, 10% (1-2) ■ 5% - 1; 10% - 2 ■ Use salvaged, refurbished or reused materials such that the sum of these materials constitutes at least 5% or 10%, based on cost, of the total value of materials on the project. Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3– 7.	c	Previously used materials will not meet credit requirements.	-
2					MRc4	**Recycled Content,** 10%, 20% (1-2) ■ 10% - 1; 20% - 2 ■ Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% or 20% (based on cost) of the total value of the materials in the project (CSI Masterformat 2004 Edition Divisions 3-10, 31 (Section 31.60.00 Foundations) and 32 (Sections 32.10.00 Paving, 32.30.00 Site Improvements, and 32.90.00 Planting). Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7. Recycled content shall be defined in accordance with the International Organization of Standards document, ISO 14021—Environmental labels and declarations—Self-declared environmental claims.	c	Determine recycled content products to be used. Track via submittal process and material tracking worksheets.	-
1	1				MRc5	**Regional Materials,** 10%, 20% (1-2) ■ 10% - 1; 20% - 2 ■ Use building materials or products that have been extracted, harvested or recovered, as well as manufactured, within 500 miles of the project site for a minimum of 10% or 20% (based on cost) of the total materials value (CSI Masterformat 2004 Edition Divisions 3-10, 31 (Section 31.60.00 Foundations) and 32 (Sections 32.10.00 Paving, 32.30.00 Site Improvements, and 32.90.00 Planting). Mechanical, electrical and plumbing components and specialty items such as elevators and equipment shall not be included in this calculation. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7.	c	Determine regionally sourced products to be used. Track via submittal process and material tracking worksheets.	-
		1			MRc6	**Rapidly Renewable Materials,** 2.5% (1) ■ Use rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project, based on cost (CSI Masterformat 2004 Edition Divisions 3-10, 31 (Section 31.60.00 Foundations) and 32 (Sections 32.10.00 Paving, 32.30.00 Site Improvements, and 32.90.00 Planting). Rapidly renewable building materials and products are made from agricultural products that are typically harvested within a 10 year or shorter cycle.	c	Determine rapidly renewable products to be used. Track via submittal process and material tracking worksheets.	-

Yes	Strong ?	Weak ?	No	N/A					
1					MRc7	**Certified Wood,** 50% (1) ■ Use a minimum of 50% of wood-based materials and products, which are certified in accordance with the Forest Stewardship Council's (FSC) Principles and Criteria, for wood building components. These components include, but are not limited to, structural framing and general dimensional framing, flooring, sub-flooring, wood doors and finishes. Only include materials permanently installed in the project. Furniture may be included, providing it is included consistently in MR Credits 3–7. Only FSC Pure, FSC Mixed Credit and FSC Mixed NN% count towards the credit. FSC Recycled and FSC Recycled Credit do not count towards the credit.	c	Determine FSC certified wood products to be used. Track Chain of Custody via submittal process.	Hard cost: FSC wood.
11	**2**	**2**				**Indoor Environmental Quality (IEQ) - 15 Points Available**		**Notes**	**Cost**
Y					IEQp1	**Minimum IAQ Performance** (P) ■ CASE 1. Mechanically Ventilated Spaces: Mechanically Ventilated Systems must meet the minimum requirements of Sections 4 through 7 of ASHRAE 62.1-2007, Ventilation for Acceptable Indoor Air Quality (with errata but without addenda). Mechanical ventilation systems shall be designed using the Ventilation Rate Procedure or the applicable local code, whichever is more stringent. ■ CASE 2. Naturally Ventilated Spaces: Naturally ventilated buildings shall comply with ASHRAE 62.1-2007 (with errata but without addenda) paragraph 5.1.	d	Document that requirements of ASHRAE 62.1-2004 are met based on the Ventilation Rate Procedure.	-
Y					IEQp2	**Environmental Tobacco Smoke** (ETS) **Control** (P) ■ OPTION 1: Prohibit smoking in the building. AND Prohibit on-property smoking within 25 feet of entries, outdoor air intakes and operable windows. Provide signage to either allow smoking in designated areas, prohibit smoking is designated areas, or prohibit smoking on the entire property. OR ■ OPTION 2: Prohibit smoking in the building except in designated smoking areas. AND Prohibit on-property smoking within 25 feet of entries, outdoor air intakes and operable windows. Provide signage to either allow smoking in designated areas, prohibit smoking is designated areas, or prohibit smoking on the entire property. Locate designated smoking rooms to effectively contain, capture and remove ETS from the building. Room must be directly exhausted to the outdoors with no re-circulation of ETS-containing air to the non-smoking area of the building, and enclosed with impermeable deck-to-deck partitions. With the doors to the smoking room closed, operate exhaust sufficient to create a negative pressure. Performance of the smoking room differential air pressures shall be verified.	d	Develop a no-smoking policy and design for a designated smoking area for the operators on the patio.	Hard cost: Signage.
1					IEQc1	**Outdoor Air Delivery Monitoring** (1) ■ Install permanent monitoring systems that provide feedback on ventilation system performance to ensure that ventilation systems maintain design minimum ventilation requirements. Configure all monitoring equipment to generate an alarm when the conditions (either airflow value or CO2 level) vary by 10% or more from the value expected at design conditions, via either a building automation system alarm to the building operator or via a visual or audible alert to the building occupants. ■ CASE 1. Mechanically Ventilated Spaces: Monitor carbon dioxide concentrations within all densely occupied spaces (those with a design occupant density greater than or equal to 25 people per 1000 sq.ft.). CO2 monitoring locations shall be between 3 feet and 6 feet above the floor. Provide a direct outdoor airflow measurement device capable of measuring the minimum outdoor air intake flow with an accuracy of plus or minus 15% of the design minimum outdoor air rate, as defined by ASHRAE 62.1-2007 (with errata but without addenda) for mechanical ventilation systems where 20% or more of the design supply airflow serves non-densely occupied spaces. ■ CASE 2. Naturally Ventilated Spaces: Monitor CO2 concentration within all naturally ventilated spaces. CO2 monitoring shall be located within the room between 3-6 feet above the floor. One CO2 sensor may be used to represent multiple non-densely occupied spaces if the natural ventilation design uses passive stack(s) or other means to induce airflow through those spaces equally and simultaneously without intervention by building occupants.	d	Identify densely occupied spaces to have space CO2 sensors. Provide outdoor airflow measurement stations for non-densely occupied spaces.	Hard cost: CO2 and airflow sensors.
		1			IEQc2	**Increased Ventilation** (1) ■ CASE 1. Mechanically Ventilated Spaces: Increase breathing zone outdoor air ventilation rates to all occupied spaces by at least 30% above the minimum rates required by ASHRAE Standard 62.1-2007 (with errata but without addenda) as determined by EQ Prerequisite 1. ■ CASE 2. Naturally Ventilated Spaces: Determine that natural ventilation is an effective strategy for the project by following the flow diagram process shown in the Figure 2.8 of the Chartered Institution of Building Services Engineers Applications Manual 10:2005, Natural ventilation in non-domestic buildings. AND -OPTION 1: Show the design of natural ventilation systems meets recommendations set forth in CIBSE manuals appropriate to the project space. Path 1: CIBSE Applications Manual 10: 2005, Natural Ventilation in Non-domestic Buildings Path 2: CIBSE AM 13:2000, Mixed Mode Ventilation OR -OPTION 2: Use macroscopic, multi-zone analytic model to predict that room-by-room airflows will meet minimum ventilation rates required by ASHRAE 62.1-2007 chapter 6 (with errata but without addenda) for at least 90% of occupied spaces.	d	Calculate minimum ventilation rates that are 30% greater than 62.1-2004 and give guidance on potential increased equipment capacity.	Hard cost: Increased energy usage and HVAC size.

Yes	Strong ?	Weak ?	No	N/A					
1					IEQc3.1	**Construction IAQ Management Plan,** During Construction (1) Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building as follows: • During construction meet or exceed the recommended Control Measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008, Ch.3. • Protect stored on-site or installed absorptive materials from moisture damage. • If permanently installed air handlers are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille, as determined by ASHRAE 52.2-1999 (with errata but without addenda). Replace all filtration media immediately prior to occupancy.	C	Ambient Energy to send sample IAQ management plan during CD phase and contractor to tailor for project.	Hard cost: Construction IAQ Management.
1					IEQc3.2	**Construction IAQ Management Plan,** Before Occupancy (1) Develop an IAQ Management plan and implement after installation of all finishes, completion of building cleaning, and before occupancy. ■ OPTION 1: Flush-Out: PATH 1: After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying 14,000 cu.ft. of outdoor air / sq.ft. of floor area while maintaining an internal temperature of at least 60 degrees and relative humidity no higher than 60%. PATH 2: If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 cu.ft. of outdoor air / sq.ft. of floor area to the space. Once a space is occupied, it shall be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in EQ Prerequisite 1, whichever is greater. These conditions shall be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space. Note: All finishes must be installed prior to flush-out. OR ■ OPTION 2: Air Testing: Conduct baseline IAQ testing consistent with the US EPA Compendium of Methods for the Determination of Air Pollutants in Indoor Air OR the ISO method listed in the LEED Reference Guide. Testing must be done in accordance with one standard; project teams may not mix requirements from the EPA Compendium of Methods with ISO.	C	Mechanical to determine length of flush out. If air testing is preferred select testing company to perform.	Hard cost: IAQ testing. Soft cost: Flushout.
1					IEQc4.1	**Low-Emitting Materials,** Adhesives & Sealants (1) All adhesives and sealants used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the requirements of the following reference standards: • Adhesives, Sealants and Sealant Primers: South Coast Air Quality Management District (SCAQMD) Rule #1168. VOC limits are listed in the table below and correspond to an effective date of July 1, 2005 and rule amendment date of January 7, 2005. • Aerosol Adhesives: Green Seal Standard for Commercial Adhesives GS-36 requirements in effect on October 19, 2000. Exclude adhesive and sealants integral to the water-proofing system or that are not building related. Non-membrane roof and Single ply-roof membrane sealants are excluded from meeting the VOC requirements. VOC budget method is permissible for compliance with the credit.	C	Specify and install low VOC adhesives and sealants. Verify that products meet the VOC specifications through submittal documents.	-
1					IEQc4.2	**Low-Emitting Materials,** Paints & Coatings (1) ■ Paints and coatings used on the interior of the building (defined as inside of the weatherproofing system and applied on-site) shall comply with the following criteria: • Architectural paints and coatings applied to interior walls and ceilings: Do not exceed the VOC content limits established in Green Seal Standard GS-11, Paints, First Edition, May 20, 1993. • Anti-corrosive and anti-rust paints applied to interior ferrous metal substrates: Do not exceed the VOC content limit of 250 g/L established in Green Seal Standard GC-03, Anti-Corrosive Paints, Second Edition, January 7, 1997. • Clear wood finishes, floor coatings, stains, primers, sealers and shellacs applied to interior elements: Do not exceed the VOC content limits established in South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, rules in effect on January 1, 2004.	C	Specify and install low VOC paints and coatings. Verify that products meet the VOC specifications through submittal documents.	-
1					IEQc4.3	**Low-Emitting Material,** Flooring Systems (1) ■ OPTION 1: All flooring must comply with the following as applicable to the project scope: • All carpet installed in the building interior shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. • All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program. • All carpet adhesive shall meet the requirements of EQ Credit 4.1: VOC limit of 50 g/L. • All hard surface flooring must meet the requirements of FloorScore standard (current as of the date of the rating system or more stringent version) as shown with testing by an independent third-party. Mineral-based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic-based coatings and sealants and unfinished/untreated solid wood flooring qualify for credit without any IAQ testing requirements. However, associated site applied adhesives, grouts, finishes and sealers must be compliant for a mineral based or unfinished/untreated solid wood flooring system to qualify for credit. • Concrete, bamboo, wood, and cork floor finishes (sealer, stain, finish etc.) must meet SCAQMD Rule 1113. • Tile setting adhesives and grout must meet SCAQMD Rule 1168. OR ■ OPTION 2: All flooring elements installed in the building interior must meet the testing and product requirements of the California Department of Health Services Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers, including 2004 Addenda. Mineral-based finish flooring products such as tile, masonry, terrazzo, and cut stone without integral organic-based coatings and sealants and unfinished/untreated solid wood flooring qualify for credit without any IAQ testing requirements. However, associated site applied adhesives, grouts, finishes and sealers must be compliant for a mineral based or unfinished/untreated solid wood flooring system to qualify for credit.	C	Specify and install low VOC carpet and FloorScore certified hard surface flooring. Verify that products meet the VOC specifications through submittal documents.	Hard Cost: FloorScore certified flooring.

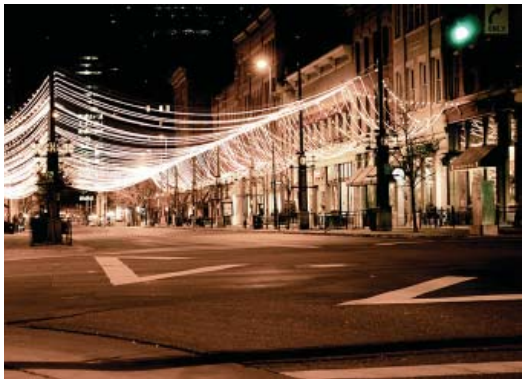
Yes	Strong ?	Weak ?	No	N/A					
1					IEQc4.4	**Low-Emitting Materials,** Composite Wood & Agrifiber Products (1) ■ Composite wood and agrifiber products used on the interior of the building (defined as inside of the weatherproofing system) shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood and agrifiber assemblies shall contain no added urea-formaldehyde resins. Composite wood and agrifiber products are defined as: particleboard, medium density fiberboard (MDF), plywood, wheatboard, strawboard, panel substrates and door cores. Materials considered fixtures, furniture, and equipment (FF&E) are not considered base building elements and are not included.	c	Verify that products meet the VOC specifications through submittal documents. Consider particle board, MDF, plywood, wheatboard, strawboard, panel substrates, and door cores.	-
	1				IEQc5	**Indoor Chemical & Pollutant Source Control** (1) ■ Design to minimize and control pollutant entry into buildings and later cross-contamination of regularly occupied areas through the following strategies: • Employ permanent entryway systems at least ten feet long in the primary direction of travel to capture dirt and particulates from entering the building at regular entry points directly connected to the outdoors. Acceptable entryway systems include permanently installed grates, grilles, or slotted systems that allow for cleaning underneath. Roll-out mats are acceptable only when maintained on a weekly basis by a contracted service organization. • For garages, housekeeping/laundry areas and high volume copying/printing rooms, provide self-closing doors and deck to deck partitions or a hard lid ceiling. High volume printing or copying is defined as a machine that produces more than 40,000 pages (20,000 double-sided) per month. Sufficiently exhaust each space where hazardous gases or chemicals may be present or used to create negative pressure. The exhaust rate shall be at least 0.50 cfm/sq.ft., with no air recirculation. The pressure differential with the surrounding spaces shall be at least 5 Pa (0.02 inches of water gauge) on average and 1 Pa (0.004 inches of water) at a minimum when the doors to the rooms are closed. • In mechanically ventilated buildings, each ventilation system that supplies outdoor air shall comply with the following: Particle filters or air cleaning devices shall be provided to clean the outdoor air at any location prior to its introduction to occupied spaces AND These filters or devices shall be rated a minimum efficiency reporting value (MERV) of 13 or higher in accordance with ASHRAE Standard 52.2 AND Clean air filtration media shall be installed in all air systems after completion of construction and prior to occupancy.	d	Verify that MERV 13 filters are obtainable. Design janitor closets and other locations with hazardous chemicals with hard lid ceiling, self-closing doors and separate exhaust. Specify main entrances with grilles or mats with weekly maintenance. (Mats will need to be at least ten feet long in the primary direction of travel). High volume copying/printing not present in the Transit Center.	Hard cost: MERV 13 filters; exhausts, walk-off mats.
1					IEQc6.1	**Controllability of Systems,** Lighting (1) ■ Provide individual lighting controls for 90% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. AND Provide lighting system controllability for all shared multi-occupant spaces to enable lighting adjustment that meets group needs and preferences.	d	Provide lighting controls for individual workstations and shared multi-occupant spaces. Local switching potential in lieu of task lighting to reduce occupant complaints.	Hard cost: Task lights.
	1				IEQc6.2	**Controllability of Systems,** Thermal Comfort (1) ■ Provide individual comfort controls for 50% (minimum) of the building occupants to enable adjustments to suit individual task needs and preferences. Operable windows can be used in lieu of comfort controls for occupants of areas that are 20 feet inside of and 10 feet to either side of the operable part of the window. The areas of operable window must meet the requirements of ASHRAE 62.1-2007 paragraph 5.1 Natural Ventilation. AND Provide comfort system controls for all shared multi-occupant spaces to enable adjustments to suit group needs and preferences.	d	Determine if 50% of occupants will be able to control thermal comfort.	-
1					IEQc7.1	**Thermal Comfort,** Design (1) ■ Design HVAC systems and the building envelope to meet the requirements of ASHRAE Standard 55-2004, Thermal Comfort Conditions for Human Occupancy. Demonstrate design compliance in accordance with the Section 6.1.1 Documentation.	d	Design temperature controls to meet ASHRAE 55-2004.	-
1					IEQc7.2	**Thermal Comfort,** Verification (1) ■ Provide a permanent monitoring system to ensure building performance to the desired comfort criteria as determined by EQc7.1. Agree to implement a thermal comfort survey of building occupants within a period of six to 18 months after occupancy. This survey should collect anonymous responses about thermal comfort in the building including an assessment of overall satisfaction with thermal performance and identification of thermal comfort-related problems. Agree to develop a plan for corrective action if the survey results indicate that more than 20% of occupants are dissatisfied with thermal comfort in the building. This plan should include measurement of relevant environmental variables in problem areas in accordance with ASHRAE Standard 55-2004 (with errata but without addenda). Thermal Comfort Verification, is contingent on the successful completion and award of the credit- Thermal Comfort: Design.	d	Develop survey to administer to building occupants 6-18 months after occupancy. Ambient Energy to send sample survey.	Hard cost: Permanent monitoring system. Soft cost: Thermal comfort study.
		1			IEQc8.1	**Daylight & Views** , Daylight 75% of Spaces (1) ■ OPTION 1: Simulation: Demonstrate, through computer simulations, that 75% or more of all regularly occupied spaces achieve daylight illuminance levels of a min. 10fc and a maximum of 500fc in a clear sky condition on September 21 at 9:00 AM and 3:00 PM. Designs that incorporate view-preserving automated shades for glare control may demonstrate compliance for only the minimum 10fc illuminance level. ■ OPTION 2: Prescriptive Use a combination of side-lighting and/or top-lighting to achieve a total daylight zone that is at least 75% of all regularly occupied spaces. ■ OPTION 3: Measurement: Demonstrate that a minimum daylight illumination level of 10fc has been achieved in at least 75% of all regularly occupied areas. Measurements must be taken on a 10-foot grid for all occupied spaces and must be recorded on building floor plans. ■ OPTION 4: Combination: Use a combination of above Simulation and Prescription methods to document credit compliance.	d	Determine percentage of regularly occupied spaces that meet daylight requirements. Ambient Energy to perform preliminary daylighting calculations.	Soft cost: Daylight calculations.
1					IEQc8.2	**Daylight & Views,** Views for 90% of Spaces (1) ■ Achieve direct line of sight to the outdoor environment via vision glazing between 2'6" and 7'6" above finish floor for building occupants in 90% of all regularly occupied areas.	d	Determine percentage of regularly occupied spaces that meet view requirements. Utilize low partitions and interior glazing.	Hard cost: Interior glazings. Soft cost: Views calculations.

Yes	Strong ?	Weak ?	No	N/A		Innovation & Design Process (ID) - 6 Points Available		Notes	Cost
6									
1					IDc1.1	**Innovation in Design,** Credit exceedance SSc4.1 (1) ■ PATH 2: Exemplary Performance: Double transit ridership - Locate the project within 1/2 mile of at least 2 existing commuter rail, light rail, or subway lines OR Locate the project within 1/4 mile of at least 2 or more stops for 4 or more public or campus bus lines usable by building occupants AND Frequency of service must be at least 200 transit rides per day, total, at these stops. A combination of rail and bus lines is allowable.	d	See SSc4.1	-
1					IDc1,2	**Innovation in Design,** Sustainable Education (1) ■ PATH 1: Innovation in Design: Provide two of the three following items: 1) a case study 2) regularly scheduled presentations or building tours 3) signage of the environmental features of the building.	d	Determine which two options will be pursued.	Hard cost: Signage displays, kiosk. Soft cost: Printing, graphics.
1					IDc1.3	**Innovation in Design,** Green Cleaning (1) ■ PATH 1: Innovation in Design: Have a green cleaning policy for the building and site adhering to LEED-2009 for EB: O&M addressing the following green cleaning credits and other requirements: - Purchase of sustainable cleaning and hard floor and carpet care products meeting the sustainability criteria in EQ Credits 3.3; - Purchase of cleaning equipment meeting the sustainability criteria outlined in EQ Credit 3.4; - Establishment of standard operating procedures for utilization, management and audition of addressing effective cleaning and hard floor and carpet maintenance system; - Develop strategies to promote and improve hand hygiene; - Develop guidelines to address the safe handling and storage of cleaning chemicals used in the buildings, including a plan for managing hazardous spills or mishandling incidents; - Develop requirements for staffing and training of maintenance personnel specifically addressing the hazards of use, disposal, and recycling of cleaning chemicals, dispensing equipment, and packaging; - Provision for collecting occupant feedback and continuous improvement to evaluate new technologies, procedures and processes.	d	Ambient Energy to send sample Green Cleaning Policy for review.	Soft cost: Policy implementation.
1					IDc1.4	**Innovation in Design,** Pilot Credit (1) ■ PATH 3: Pilot Credit: Attempt the pilot credit when available in the Pilot Credit Library (currently not listed but expected to be added in the next quarter). Register as a pilot credit participant and complete the required documentation.	d	Register for Pilot credit when available.	-
1					IDc1.5	**Innovation in Design,** Design for One Earth (1) ■ PATH 1: Innovation in Design: Achieve significant, measureable environmental performance using "Design for One Earth".	d	Document impact of "Design for One Earth" on the project.	-
					Alt	**Innovation in Design,** Light sensors in bus canopies and parking garage (1) ■ PATH 1: Innovation in Design: Achieve significant, measureable environmental performance using "Light sensors in bus canopies and parking garage".		Document energy savings by using light sensors in bus canopies and garage.	Hard cost: Sensors.
					Alt	**Innovation in Design,** Carbon footprint for taking the bus (1) ■ PATH 1: Innovation in Design: Achieve significant, measureable environmental performance using an application to document "carbon footprint reduction for taking a bus".		Document the process and the impact on passengers.	Hard cost: Displays. Soft cost: Application development.
1					IDc2	**LEED® Accredited Professional** (1) ■ At least one principal participant of the project team shall be a LEED Accredited Professional (AP).	c	Ambient Energy to complete credit template.	

Yes	Strong ?	Weak ?	No	N/A
2		2		

Yes	Strong ?	Weak ?	No	N/A		Regional Priority (RP) - 4 Points Available		Notes	Cost
1					RPc1.1	**Regional Priority,** SSc5.2 Site Development, Maximize Open Space (1) ■ CASE 1. Sites with Local Zoning Open Space Requirements: Reduce the development footprint (defined as the total area of the building footprint, hardscape, access roads and parking) and/or provide vegetated open space within the project boundary to exceed the local zoning's open space requirement for the site by 25%. OR ■ CASE 2. Sites with No Local Zoning Requirements: Provide vegetated open space area adjacent to the building that is equal to the building footprint. OR ■ CASE 3. Site with Zoning Ordinances but No Open Space Requirements: Provide vegetated open space equal to 20% of the project's site area. ■ ALL CASES: -Urban projects that earn SSc2 - vegetated roof areas can contribute to credit compliance. -Urban projects that earn SSc2 - pedestrian oriented hardscape areas can contribute to credit compliance. For such projects, a minimum of 25% of the open space counted must be vegetated. -Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical: horizontal) or less and are vegetated.	d	See SSc5.2	
		1			RPc1.2	**Regional Priority,** IEQc8.1 Daylight & Views , Daylight 75% of Spaces (1) ■ OPTION 1: Simulation: Demonstrate, through computer simulations, that 75% or more of all regularly occupied spaces achieve daylight illuminance levels of a min. 10fc and a maximum of 500fc in a clear sky condition on September 21 at 9:00 AM and 3:00 PM. Designs that incorporate view-preserving automated shades for glare control may demonstrate compliance for only the minimum 10fc illuminance level. ■ OPTION 2: Prescriptive Use a combination of side-lighting and/or top-lighting to achieve a total daylight zone that is at least 75% of all regularly occupied spaces. ■ OPTION 3: Measurement: Demonstrate that a minimum daylight illumination level of 10fc has been achieved in at least 75% of all regularly occupied areas. Measurements must be taken on a 10-foot grid for all occupied spaces and must be recorded on building floor plans. ■ OPTION 4: Combination: Use a combination of above Simulation and Prescription methods to document credit compliance.	d	See IEQc8.1	
		1			RPc1.3	**Regional Priority,** WEc3 Water Use Reduction, 40% (1) ■ Employ strategies that in aggregate use 40% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 and 2005 fixture performance requirements and the 2006 Uniform Plumbing Code or International Plumbing Code. Calculations are based on estimated occupant usage and shall include only the following fixtures and fixture fittings (as applicable to the building): water closets, urinals, lavatory faucets, showers, kitchen sinks and pre-rinse spray valves.	d	See WEc3	
					RPc1.4	**Regional Priority,** WEc2 Innovative Wastewater Technologies (1) ■ OPTION 1: Reduce potable water use for building sewage conveyance by 50% through the use of water conserving fixtures or non-potable water. OR ■ OPTION 2: Treat 50% of wastewater on-site to tertiary standards. Treated water must be infiltrated or used on-site.	d	See WEc2	
					Alt.	**Regional Priority,** MRc1.1 Building Reuse, Maintain Existing Walls, Floors & Roof, 55% (1) ■ Maintain the existing building structure (including structural floor and roof decking) and envelope (exterior skin and framing, excluding window assemblies and non-structural roofing material). Hazardous materials that are remediated as a part of the project scope shall be excluded from the calculation of the percentage maintained. If the project includes an addition to an existing building, this credit is not applicable if the square footage of the addition is more than 2 times the square footage of the existing building.	d	See MRc1..1	
1					Alt.	**Regional Priority,** EAc2 On-Site Renewable Energy, 1% (1) ■ Use on-site renewable energy systems to offset building energy cost. Calculate project performance by expressing the energy produced by the renewable systems as a percentage of the building annual energy cost and using the table below to determine the number of points achieved. Use the building annual energy cost calculated in EA Credit 1 or use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use. (Table of use for different building types is provided in the Reference Guide.)	d	See EAc2	

7.0 PUBLIC ART



7.0 Public Art

Background

The City has mentioned their desire to incorporate art as integrated permanent installations occurring throughout the project as opposed to installing one large art piece. At this time, no budget has been allocated to the project for public art. In addition, no percentage of the budget for public art is required of this project. Certain enhancements to the design can be accommodated through a public art program that will further breathe amusement into and animate the Project. The building design needs to respond to City input regarding public art budget and the method of procuring and installing these elements into the Project.

Desirable elements of public art may include benches, murals, mosaics, statues, light fixtures, interpretive panels, interactive and passive water features, and overhead installations.

Intent

Enrich the employee and visitor environment by providing stimulating, interesting visual and tactile experiences which may incorporate historical and whimsical references.

Enhance the passenger experience at the bus platform waiting areas by reinforcing the "outdoor room" concept through the use of art and color.

7.1 Permanent Public Art

- Public art pieces may include elements of history represented in mosaics into the paving and wall murals and art panels along the walkways and passages of the project. (Figures 7.1, 7.2, 7.3).

Figure 7.1 *Small Art Panels*

Figure 7.2 *Montebello Art Panels*

Figure 7.3 *Inglewood Mural*

- Public art pieces may include lighted, festive lighting elements over the top and along the walkways to the bus platforms. (Figures 7.4, 7.5, 7.6).

Figure 7.4 *Larimer Square*

Figure 7.5 *Pink Balls of Aires Libres*

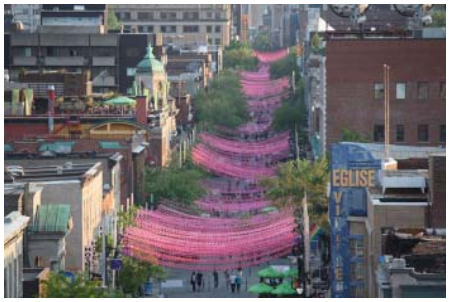


Figure 7.6 *Pink Balls of Aires Libres*

- Public art pieces may include sculptures and statuary in the gardens and entry feature art at the major drop off area and gateway to the project. (Figures 7.7, 7.8, 7.9).

Figure 7.7 *Paper Airplane*

Figure 7.8 *Icons*

Figure 7.9 *Fletcher Cove wall*

- Public art may include specialty seating and paving features within the plaza, major pedestrian areas, or on the bus platform. (Figures 7.10, 7.11).

Figure 7.10 *Benches as art*

Figure 7.11 *Grand Park benches*

- Public art may include vertical installations on the canopy columns within the plaza and on the bus platform. (Figure 7.12).

Figure 7.12 *Grand Park sign integrating wayfinding and art*

- Public art may include interactive elements such as sculptures that children can climb or art that changes or moves based on interaction with pedestrians. (Figures 7.13, 7.14)

Figure 7.13 *Humble Telescope*

Figure 7.14 *Swamis Beach*

7.2 Bus Platform Art

- Use bus platform art as a separate permanent to reinforce the “outdoor room” concept by creating unique spaces at each bus berth waiting area.
- Use color at each “outdoor room” that corresponds to Torrance bus line colors.
- For each “outdoor room’, create a functional freestanding vertical art installation that may consist of low level planting, lighting and permanent and electronic signage that identifies the bus line and provide mood and/or functional lighting within the area.

7.3 Temporary Installations

- Provide space within the plaza and along the walkways to the bus platform for temporary exhibit of public art that will allow for the temporary installation of lighting and power.
- Provide power connections for the temporary installation of holiday and special event lighting.

APPENDICES

Disclaimer: The appendices document examples of precedents, materials and sketch studies presented to the City during the September 2012 workshops. They are meant to show the possibilities for consideration during the workshop process. The appendices are not meant to convey guidelines or standards to follow.

A.1 BUILDING ARCHITECTURE

The Wall: *Wall compilation photo showing building architecture presentation.*

The Table: *Physical material samples were laid out on the table for consideration.*

A.2 BUILDING COLOR

Example Blue Color Palette

Example Bold Greens Color Palette

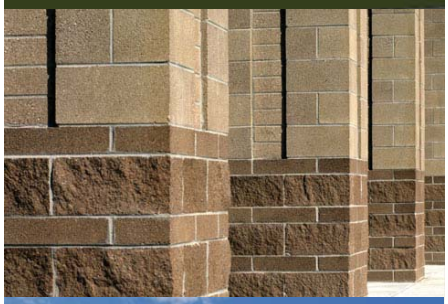
Example Textured Panel Color Palette

Example Bold Color Palette

Example Reds Color Palette

Example Torrance Transit Color Palette

Example Buff / Natural Color Palette

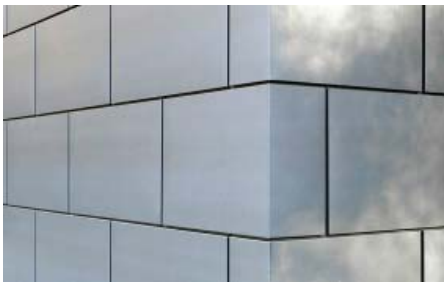


Example Grey Tones Color Palette

Example Pastel Color Palette

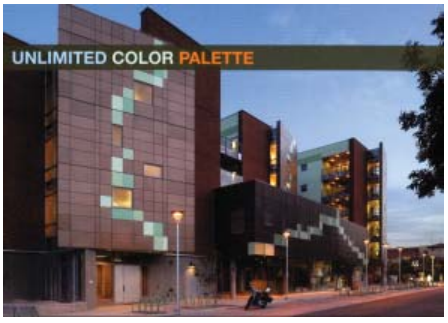
A.3 BUILDING TEXTURE

Example Block Textures



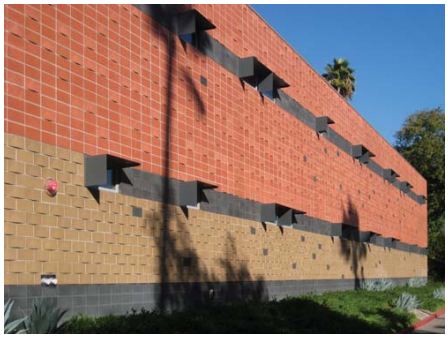
A.4 MATERIALS

Swiss Pearl (Fiber Cement Board)



Metal Panel

Block



A.5 BUILDING FORM

Curves

A.6 TORRANCE TRANSIT COLORS

Torrance Transit Colors **May 2010**

PMS

Blue: PMS 302 ***(this blue for most purposes EXCEPT the TT logo)***
Green: PMS 342
Gold: PMS 871
LOGO Blue*: PMS 288

4-Color Process

Blue: 100c 50m 10y 40k ***(this blue for most purposes EXCEPT the TT logo)***
Green: 100c 10m 70y 45k
Gold: 34c 47m 87y 15k
LOGO Blue*: 100c 60m 40k

RGB Colors

Blue: 0r 75g 118b ***(this blue for most purposes EXCEPT the TT logo)***
Green: 0r 100g 76b
Gold: 155r 120g 60b
LOGO Blue*: 0r 66g 122b

* LOGO Blue is a little bit darker/richer and provides better contrast.

B.1 CANOPY DIRECTION

A "Twisted Ribbon" at Bard College, NY

Restrained Canopy Examples at Millennium Park

5 Options Based on the Bard College Theme

A

B

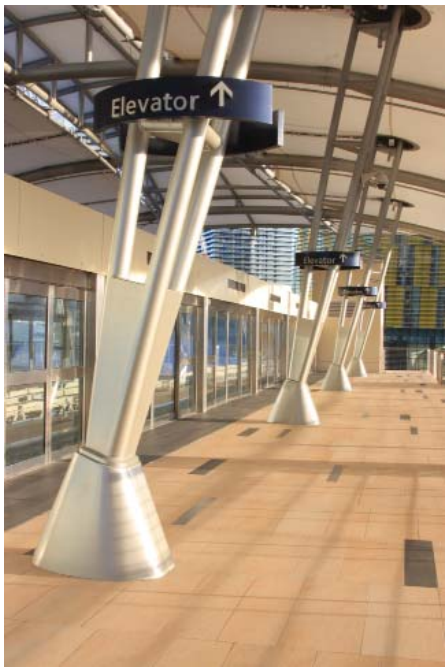
C

D

E

B.2 CANOPY PRECEDENTS

The following are a collection of Fabritec precedent projects presented for consideration representing possible canopy directions in Tensile Fabric and Lighting Effects.

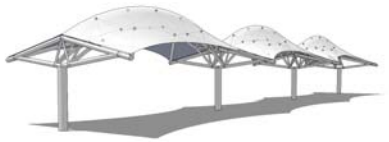


Lighting Effects

B.3 CANOPY ENGINEERING STUDIES

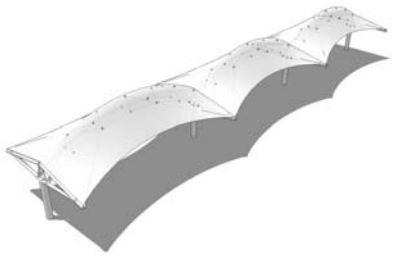
The following are engineering drawings from Fabritec based on the 30% design canopy direction.

Bus Platform & Bus Crossing



Torrance Transit
Walkway Study - Option 3 - View 1
9.07.12

Torrance Transit
Walkway Study - Option 3 - View 3
9.07.12



Torrance Transit
Walkway Study - Option 3 - View 2
9.07.12

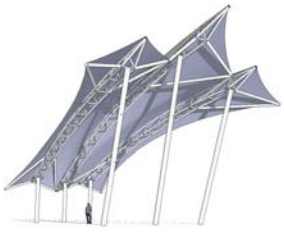
Plaza

Torrance Transit
Plaza - Option 3
9.07.12

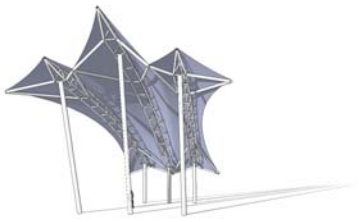
Torrance Transit
Plaza - Option 3
9.07.12

Torrance Transit
Plaza - Option 3
9.07.12

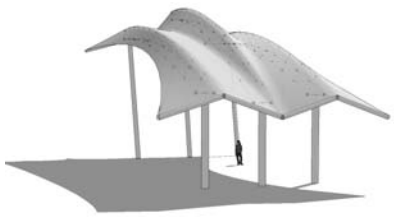
Main Entry



Torrance Transit
Main Entrance - Option 3
9.07.12



Torrance Transit
Main Entrance - Option 3
9.07.12



Torrance Transit
Main Entrance - Option 3
9.07.12